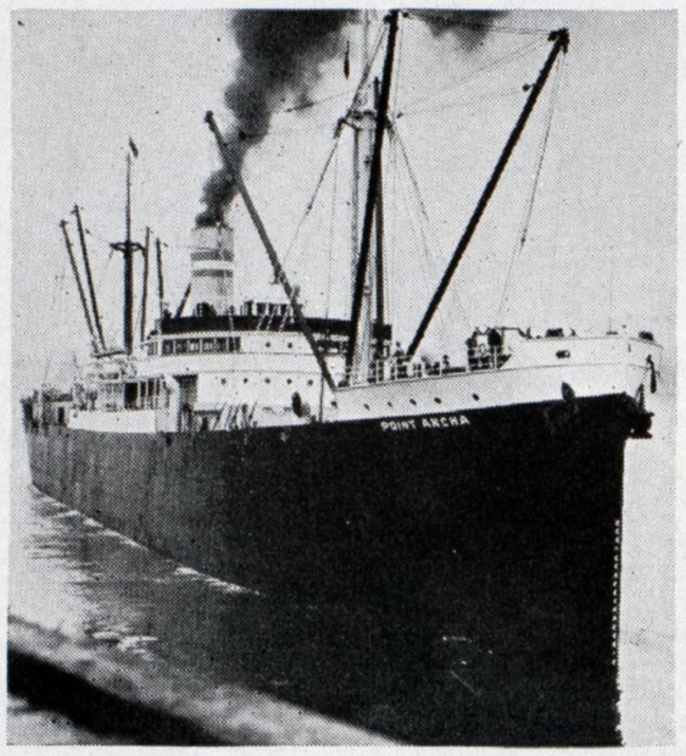
Marine Review

SHIP OPERATION . SHIPBUILDING . CARGO HANDLING

The National Publication Covering the Business of Transportation by Water

CLEVELAND **FOUNDED 1878** **NEW YORK**



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Published monthly by
The Penton Publishing Co.
Cleveland, Ohio, U. S. A.

Cleveland Office, Penton Bldg.
A. H. JANSSON, Editor
F. V. COLE, Business Manager

New York Office, 220 Broadway
R. D. MacMILLEN, Eastern Manager
E. C. KREUTZBERG
B. K. PRICE

Chicago Office, 1118 Peoples Gas Bldg.
L. C. PELOTT
W. G. GUDE

Pittsburgh Office, 507-8 Oliver Bldg.
S. H. JASPER
E. A. FRANCE JR.

Washington, D. C. Office,
1050 National Press Building
L. M. LAMM

London Office, Caxton House
Westminster, S. W. 1
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Marine Review is published monthly on the first of each month by the Penton Publishing Co., Penton Building, Cleveland, O. John A. Penton, Chairman of the Board; C. J. Stark, President; J. D. Pease, Vice President; F. V. Cole, Secretary.

Member, Audit Bureau of Circulations, Associated Business Papers Inc., and National Publishers Association.

Subscription in the United States and its possessions and in Cuba and Mexico, $3 per year; single copies 35 cents, back numbers over three months 50 cents. Subscription in Canada $4 per year; in Great Britain and other foreign countries £ 1 per year. Cable addresses: Penton, Cleveland, and Irotrapen, London.

Entered in the post office at Cleveland, O., as second class matter under the act of March 3, 1879.

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Marine Review
FOUNDED 1878
SHIP OPERATION - SHIPBUILDING - CARGO HANDLING
Volume 64 August, 1934 Number 8

How Merchant Shipbuilding Might be Encouraged

THE latest quarterly review of world merchant shipbuilding, issued by Lloyd's Register of Shipping, a full abstract of which appears elsewhere in this issue, shows that the United States, possessing the second largest merchant fleet, is now building an almost negligible amount, only 2.3 per cent, of vessels currently under construction, while Great Britain, is building 48.3 per cent. Japan, France, Germany, Denmark, Holland, Sweden and Italy are all, in the order mentioned, building from over five times, for Japan, to approximately twice, for Italy, the gross tonnage of merchant ships under construction by the United States.

This situation is a serious matter of national concern if we are to continue to hold even our present moderate share of the ocean transport of the trade to which we are a party. It is self-evident that we cannot continue to compete with out of date and obsolescent ships against the modern units added in recent years in such considerable numbers to other mercantile fleets. Furthermore, parity in naval fighting ships will not mean parity in effective naval strength if our mercantile fleet is inferior.

Rehabilitation of heavy industry is one of the chief problems facing the administration. Shipbuilding is one of the important heavy industries and while the naval program has been of great benefit to many shipyard workers, effective steps should be taken to overcome the complete inertia with respect to merchant shipbuilding from which this industry now suffers so severely. Surely something can and should be done to stimulate private initiative in a program of replacement of existing vessels now in employment which are unduly costly to operate because of their inefficient and outmoded machinery and which cannot compete in quality of service with modern vessels.

There are many steamship companies in the United States in all the various trades, offshore, coastwise, intercoastal, Great Lakes and inland waterways, well managed and effectively operated, that are now using vessels which ought to be replaced by modern efficient units, and these vessels would be replaced without question in normal times. It is recommended that all of these steamship companies be requested to classify the vessels of their fleets in, let us say, several groups. In the A group would be included all of those vessels of such age and design as to make them completely satisfactory for the service in which they are engaged. In class B might be included vessels which are, though not first class in every respect, reasonably satisfactory for the services in which they are engaged. In class C might be included vessels not efficient and not suitable for service if satisfactory arrangements could be made to replace them, but which are continued in use because of necessity. In the last class would be included all the vessels still operating but admittedly inefficient and inferior and not suitable for service and which in normal times would be replaced as a matter of course.

This would have the effect of encouraging by direct action the taking of a careful inventory with the objective in mind of reducing cost of operation and improving the service. Such a survey, which could be carried out in the least possible time as each company would have this information covering its own vessels immediately available, would direct attention to the need of replacing specific units in specific services. It is safe to say that there would be a substantial number. The proposed new vessels should have the benefit of the very best in modern design and construction to make them as efficient and attractive as possible.

The government could well afford to aid in financing the building of these specific vessels for specific services at a rate of interest and under conditions for repayment of loans which would make it possible for the owner to go

ahead. In any case a survey would help.

This plan should be applied to all types of floating equipment from harbor tugs and river towboats to ocean liners. Where the new vessels are to replace existing units, some definite arrangement must be made for the lay-up and retirement from service or sale for scrap of the units so replaced.

In working out a plan of this kind three important objectives would be attained. Heavy industry would be stimulated and employment would be provided. Service to shippers and other patrons of waterlines would be improved. And by these expenditures valuable, useful property would be created.

Regardless of the question of financing, which would undoubtedly require congressional action, we believe that this preliminary step of a country-wide survey of floating property in all categories to determine its needs to place it on an efficient basis would in itself serve as an important move in overcoming the present lethargy in merchant shipbuilding.

♦ ♦ ♦

British Motorship Building Shows Marked Gain

In the first and second decades after the introduction of the diesel engine for marine service, Britain, in proportion to the extent of its merchant marine, moved rather cautiously in the adoption of this type of power as compared with other maritime nations with the exception of the United States. Having developed the steam marine engine, both reciprocating and turbine, to a high state of perfection in efficiency and dependability, British marine engineers were reluctant both by training and tradition to change quickly to this new type of motive power. However, during this time British engineers and engine builders were constantly at work keeping in close touch with all developments and improvements in the diesel engine and were themselves contributing toward its perfection for marine service.

The result has been a steady increase in the volume of motorships, under construction in shipyards of Great Britain and Ireland. Now comes the revealing information from figures issued by Lloyd's Register of Shipping that for the quarter ended June 30 the increase in the building of motorships by Great Britain and Ireland was more than 100,000 gross tons over the previous quarter while the gain in all other types of vessels over the same period was only 33,000 tons. For the first time in history Great Britain and Ireland are now devoting almost 50 per cent of their construction to motorships.

The exact proportion of motorships as compared with steamships under construction in Great Britain and Ireland in the quarter ending June 30 was 47.6 per cent as compared with 36.5 per cent at the end of March. Of the total 587,142 gross tons of merchant vessels of 100 gross tons and over building in Great Britain and Ireland on June 30 last, 279,632 gross tons were motorships while 307,510 gross tons were other types.

This impetus to motorship building in Great Britain and Ireland has increased motorship building in the world to 57 per cent of all merchant ships under construction, the remaining 43 per cent being composed of vessels of all other types. For all other countries, that is, outside of Great Britain and Ireland, taken as a group, the total present construction of motorships is 65.6 per cent of all its merchant shipbuilding which may be compared to 69.1 per cent for this group at the end of March.

In the meantime what is the situation in the United States in regard to the building of motorships? On June 30 last the United States had under construction, according to Lloyd's figures, a total of 6319 gross tons of motorships out of a total construction of all types of merchant ships of 27,581 gross tons. In other words at the end of June last only 22.9 per cent of the pitifully small total of merchant vessels under construction in the United States was in motorships.

It is hazardous to attempt to draw any hard and fast conclusions from these statistics. The total amount of mercantile shipbuilding in the United States at the present time is too insignificant to do so. The fact remains, however, that in the United States the diesel engine for marine service has been widely adopted in lesser powers for smaller vessels and in these sizes has established a solid reputation for efficiency and dependability while there is still evident a definite reluctance to accept this type of power generally for larger vessels.

Of the eight merchant vessels under construction in the United States on May 15, four tankers each of 1200 gross tons were fitted with diesel engines in two units for each vessel, totaling 800 to 850 horsepower, that is, individual engines of 400 to 425 horsepower. One tanker of 600 gross tons was fitted with diesel electric machinery consisting of two engines each of 250 horsepower. One passenger and cargo vessel of 1400 gross tons will have two diesel engines each of 1000 horsepower. The remaining two vessels are tankers, each of 9100

gross tons, and will be fitted with steam turbine geared drives of 4000 horsepower for each vessel in single screws. It is interesting to note that three of the small tankers mentioned above with diesel drive and the two large tankers with steam drive are being built for the same company.

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Fighting Subsidy Proposed For British Tramp Ships

An official announcement has been made in the house of commons by Walter Runciman, president of the board of trade, to the effect that the British government is preparing to ask parliament to grant a "defensive" subsidy not to exceed £2,000,000, for one year only, as an aid to British tramp shipping. The proposed subsidy is "for vessels carrying tramp cargoes under tramp conditions." Certain conditions are to be met by the beneficiaries before it becomes effective. The shipowners must work out a satisfactory plan to prevent the dissipation of such aid through competition among British ships. It must be effectively used in "securing a greater employment of British tramp shipping at the expense of foreign subsidized shipping."

The shipowners who are to benefit from the proposed subsidy also have the added responsibility of negotiating proposals with shipowners in other countries for the adjustment of the supply of world tonnage to the demand so that freight rates may once more be raised to a remunerative level. It is furthermore the aim to use the proposed subsidy in such a way as to secure the abolition of foreign subsidies. This is indeed a large order.

That the subsidy is to be used to "secure greater employment of British tramp shipping at the expense of foreign subsidized shipping" is a bold statement. It is difficult to believe that it is intended to apply to American shipping. The purpose of government aid to American ships has been not to give an undue advantage but to equalize the basic costs of operation. These costs for American ships are admittedly substantially higher than they are for British ships and still higher than for the ships of other nations.

In a similar manner it would be recognized as entirely fair that the British government should do everything in its power to equalize the cost of operation of its own nationals in world trade with those nations whose costs are less. Subsidies are only justified in fair competition when the objective is to make up for the differential in cost due not to inefficiency but to the higher standards of living which have a direct effect on all costs including better subsistence and higher wages for the men employed in building, managing and operating the ship. Subsidies are not justified where it is the intention to give a direct advantage over competitors and if granted for this purpose will encourage reprisals in one form or another.

• • •

High Speed Tankers Needed As Naval Auxiliaries

With the bids to be received by the navy department Aug. 15 for the construction of four cruisers, 14 destroyers and 6 submarines, the program of building the navy up to or near treaty strength may be said to be definitely on the way as far as fighting ships are concerned, but in addition to fighting ships the navy is in need of certain types of auxiliary vessels if it is to function with maximum efficiency. Tankers of over ordinary commercial speed are needed.

Sometime ago it was actively proposed that arrangements be worked out with oil companies owning and operating tankers to undertake a program of building a total of 40 tankers with a speed of from 16 to 18 knots. Several of the oil companies indicated willingness to cooperate with the government in such a program. It was pointed out, however, that the ordinary commercial speed of tankers was somewhere around 11 knots and hardly over 12 knots. Since there is bound to be a substantial difference in first cost and in operating cost between an 11 to 12-knot tanker and one with a speed of from 16 to 18 knots the companies properly held that the government should make provision for these extra costs. The companies were ready to meet the expense of such extra fast tankers up to the point of that for the ordinary commercial tanker and to supply the technical experience of their organizations for carrying through such a program.

Such a proposition seems reasonable but nothing has come of it. If these tankers are needed for naval service, as unquestionably they are, surely some way can be found for an equitable adjustment of the additional cost. Why cannot some action be taken now to accomplish what is needed. It is clear that should the emergency arise a matter of this kind would be quickly adjusted but at such a time lack of prior action might be found to be very costly if not disastrous. Now is the time to cut the red tape and to carry through this program.

EUROPEAN SHIPPING,

Britain Plans Subsidy, Shipyards Busier

BY FRANK C. BOWEN

FOR over eighty years British shipping policy has been to avoid any form of government assistance as far as possible. All trade was thrown open in 1849 and since then subsidies granted to shipping have been for purely imperial purposes or for value more than received in the carriage of mails. But it has proved impossible to carry on with this policy any longer and, on the strict understanding that it is only a temporary measure, as the overwhelming majority of British shipowners desire, the board of trade has at long last put forward its suggestions for the assistance of British tramp shipping which have been in the air for many months.

The tramp shipping committee put forward a suggestion at the end of last year that tramp vessels should be directly subsidized by a payment of 10 shillings per gross ton per annum while they are running and half that sum while they are laid up. The total cost of this subsidy would have been £2,500,000 per annum; but the government, after careful consideration, could not see its way clear to grant this request and turned it down. British shipping is very largely a question of employment and in the view of the ministry it would be impossible to justify a subsidy for ships laid up which were providing no employment at all, and further that with such a flat rate of subsidy it would be impossible to guarantee that the taxpayers' money might not be dissipated by the domestic competition of British tramps without reference to their foreign rivals at all. It is not at all difficult to understand this point of view.

Britain to Grant Subsidy

But the president of the board of trade has announced that the government is willing to grant a subsidy, limited to one year, for defensive purposes, provided that it costs no more than two million pounds. It is to be clearly understood that the assistance is to be aimed at securing the abolition of foreign subsidies and the greater employment of British shipping and that it can only be given on condition that the shipowners themselves formulate a scheme satisfactory to the government. Hitherto all efforts to obtain complete agreement among British shipowners, particularly in the tramping section, have proved impossible but on this occasion it may be that a compromise reasonable to all parties will be arrived at.

Conditions Must Be Met

The government has contented itself with laying down two conditions, firstly, that such a scheme must prevent as far as possible the subsidy from being dissipated by competition between British tramps themselves and secondly, that it must ensure that the subsidy is effectively directed to securing the greater employment of British shipping at the expense of its subsidized foreign rivals. Even in the 12 months for which it is planned it is subject to withdrawal if the circumstances which led to its introduction have altered. It is suggested that it should also be a condition that the shipowners, through their organizations and in any other ways open to them. should press upon the shipowners of other maritime countries the framing of proposals tending to adjust the supply of tonnage in the world to the present demand, and thus to raise freight rates once more to a remunerative level.

Although it is not a part of the definite proposal put before the house, the government had been impressed by the improvements which have been made in the form and propulsion of cargo ships within recent years and it is, apart from the tramping subsidy, prepared to place at the disposal of the shipowners financial help on favorable terms for scrapping older and extravagant British cargo tonnage and providing in its place a smaller number of up-to-date ships. This assistance may be applied either to the construction of new ships or the modernization of old ones.

This last suggestion should be of great encouragement to the shipbuilders who are still in a very bad way. It is true that the percentage of unemployment is appreciably lower, having dropped from 58.7 to 47.6 in a year, but in addition to more jobs it must be remembered that these figures are affected by natural wastage and the lack of apprentices coming into the business. The figures, although encouraging, cannot therefore be regarded as satisfactory and the more thoughtful of the Labor men fully realize this. It was this realization that led to a compromise on the welding labor question in favor of the employers' case, but some points in the matter are reserved.

Unfortunately not all shipbuilding labor takes this reasonable view and the London boilermakers are, at the time of writing, on strike on what is obviously a frivolous case. The employers were asked to submit certain suggestions for discussion and bargaining and the local boilermakers' society was to do the same. But the latter did not send in its suggestion at all and immediately the employers' proposals were received the men struck without discussing them, although there was no question of the employers endeavoring to put them into force. It is significant that the head office of the Boilermakers' society, which has the reputation of always looking for a scrap, refuses to countenance this strike while members of the society in other centers are eagerly snapping up the work which the London men have thrown away.

At the same time the shipbuilding industry is faced with a difficult problem although happily it has been presented in a proper manner and is to be fully and fairly discussed. The unions suggest a 40-hour week without loss of pay instead of the present 47 hours, the reason being the absorption of shipyard workers now unemployed. A case has been presented which gives full weight to present conditions with the increased use of machinery, but no mention is made of foreign competition and the fact that Dutch and German yards are always on the lookout to snap up British repair jobs, while in new construction the Scandinavian yards have recently been quoting about £1 per gross ton less than the British yards for motor tankers.

Shipbuilding Orders in Prospect

At the same time the shipbuilding industry has reasonable hopes of a number of good orders in the immediate future. The Canadian Pacific line, according to reliable sources,

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A quarterly review of European shipping. The first and second articles for this year appeared in the February and May issues respectively. The fourth article will appear in the November issue.

Trend of Trade and Shipping in British Isles

	March	April	May	Five months ended May 31 1934	1933
Total entrances of cargo ships into British ports:					
Number of vessels	3,830	3,869	4,346	18,871	17,723
Tons	4,994,688	4,974,226	5,300,264	24,335,732	23,079,744
Tonnage from Atlantic coast of North America	798,962	823,258	935,935	3,918,696	3,950,228
	(16%)	(16.6%)	(17.7%)	(16.1%)	(17.1%)
Total clearances from British ports:					
Number of vessels	4,057	3,867	4,259	19,950	19,589
Tons	4,553,658	4,251,519	4,758,630	22,198,470	21,904,487
Tonnage going to Atlantic coast of North America	669,150	731,061	877,550	3,490,487	3,666,581
	(14.7%)	(17.2%)	(18.5%)	(15.7%)	(16.7%)
Total value of goods:					
Exported	£38,699,957	£35,118,812	£37,545,767	£182,315,878	£166,818,220
Imported	£61,969,627	£56,330,483	£61,726,970	£301,248,781	£267,062,810
Exports of coal:					
Tons	2,942,686	2,930,765	3,647,927	15,891,306	15,862,341
Value	£2,296,353	£2,346,717	£2,905,056	£12,653,640	£12,783,854
Tonnage shipped for use of steamers	1,056,293	1,038,207	1,156,238	5,561,905	5,450,993

is said to be considering the placing of the order for a second EMPRESS OF BRITAIN. This was part of the original plan, for the company fully appreciates the fact that a single ship service is at a definite disadvantage on the North Atlantic. but it has wisely been waiting until trade prospects seem propitious.

If indications are needed as to the present trend, and naturally they are eagerly sought for in all directions, the deal which the P. & O. line has just completed may be cited. It was one of the good ideas of the late Lord Inchcape to acquire a large interest in Corys, the big coal people, and he purchased shares carefully until the company had acquired well over 1,500,000, and through them made a number of exceedingly useful business connections. Some 1,500,000 of these shares have now been sold to Barings, the merchant bankers, for over £5,250,000 in cash and are to be resold to the public. It is announced that the P. & O. is to use this money for new ship construction and considering that the shares have been paying 15 per cent for a good many years past the Inchcape group must see some really good opportunity of using the money to justify the sacrifice of such a dividend coming in steadily year after year without effort on its part. Naturally enough the details of the shipbuilding plans are a matter of infinite speculation.

Part of the new program may have to do with the British India line, which for some time past has been rumored to be carefully considering the construction of new motorships for various services. Although it built a number of very fine medium-sized ships immediately after the war it is some time since the company has added any new unit to its fleet, so that it is not at all unlikely that this rumor will prove correct.

Another rumor which has recently been current concerning the P. & O. group is that the New Zealand Shipping Co. intends to re-engine the three 17,000-ton motor passenger liners of the RANGITATA class built about 1929 in order to bring their speed, which was satisfactory enough when they were built, up to the modern standards of the New Zealand meat trade in which the company takes such a prominent part.

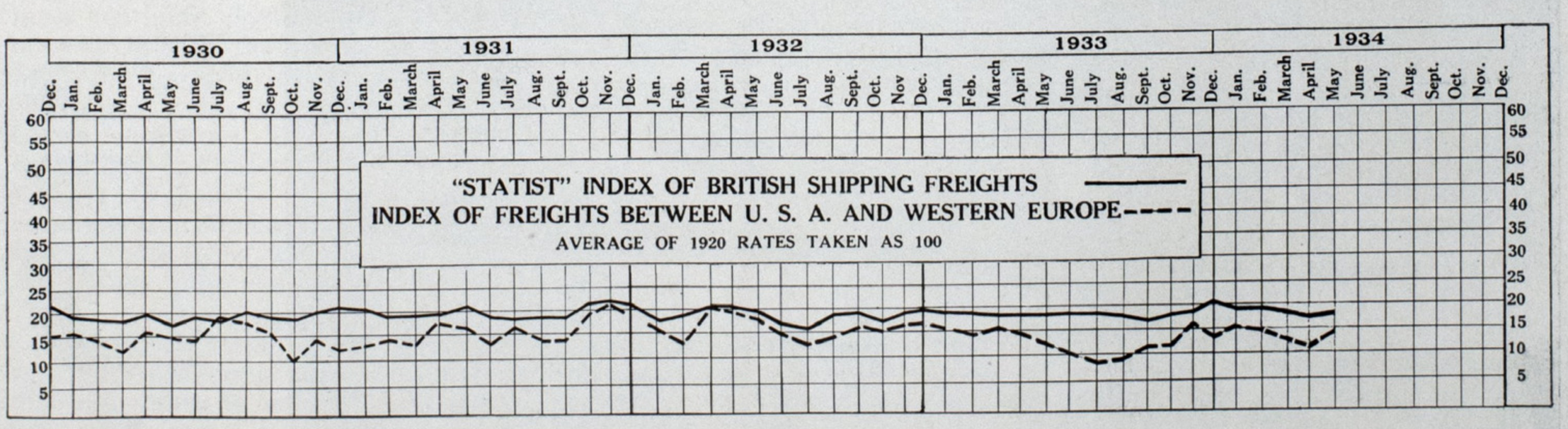
Rebuilding Diesel Engines

It is uncertain whether, should the report prove to be correct, the company intends to install new engines altogether or whether it will adapt the old ones. It must be remembered that great progress has recently been made in the improvement of diesel engines. The old argument of the steam engineer that once a diesel was built it remained incapable of very much improvement is now quite a thing of the past. The Scandinavian engineers in particular have been making considerable progress in this direction, one of their systems being the conversion of air injection engines to airless which has been successfully carried out in a number of cases at a comparatively small cost. British motorship owners have not yet tried this experiment but it is quite likely that they will do so in the immediate future.

Another British concern of which reports have been current recently is the Blue Star line, said to be considering motorships for its River Plate and North Pacific trades. Since the war this company has built a number of first-class cargo liners but until recently only one of these was diesel-engined. After being employed on both the Plate and North Pacific services she was transferred to the new run to New Zealand and three other big motorships are being built for the same service. It will be very interesting indeed if the company turns to the diesel engine for its other business as well.

The Blue Star's latest venture into the New Zealand and Australian trade is concerned with the carriage of chilled meat instead of frozen, a promising business in which experiments still continue. The meat is landed in England in first class condition after its long voyage but when

(*Continued on Page* 36)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"STATIST" INDEX OF BRITISH SHIPPING FREIGHTS
INDEX OF FREIGHTS BETWEEN U. S. A. AND WESTERN EUROPE
AVERAGE OF 1920 RATES TAKEN AS 100

Diagram showing fluctuations of ocean freight rates for four years and five months

SELF-UNLOADER,

Converted from Typical Lake Freighter

IN THE April, 1932 issue of MARINE REVIEW there appeared an article on the conversion of three lake freighters to modern self-unloading vessels. These conversions were quite revolutionary and so completely successful that, in spite of the depression, which had brought lake shipping almost to a standstill, they were followed by a fourth conversion in 1933. (MARINE REVIEW—October, 1933). The constantly increasing demand for this type of self-unloader tonnage has necessitated a fifth conversion, the vessel entering service at the end of June. All of these conversions were carried out by the American Ship Building Co. at its Lorain, O., yard.

Work Quickly Completed

This vessel, the S. S. CONSUMERS POWER, is a sister ship of the THUNDER BAY QUARRIES and the DIAMOND ALKALI, which were reconstructed in 1932. Work in converting the CONSUMERS POWER commenced on April 12, last and was completed June 29, on which date the vessel sailed from the American Ship Building Co.'s Lorain, O., plant to load coal at Toledo, O., for Toronto, Ont. Her cargo was unloaded without incident just as the other vessels started their careers as self-unloaders and have continued ever since. This fact alone bears a high tribute to the builder as does also the remarkably short time of about two and one half months, in which so extensive a job was carried out.

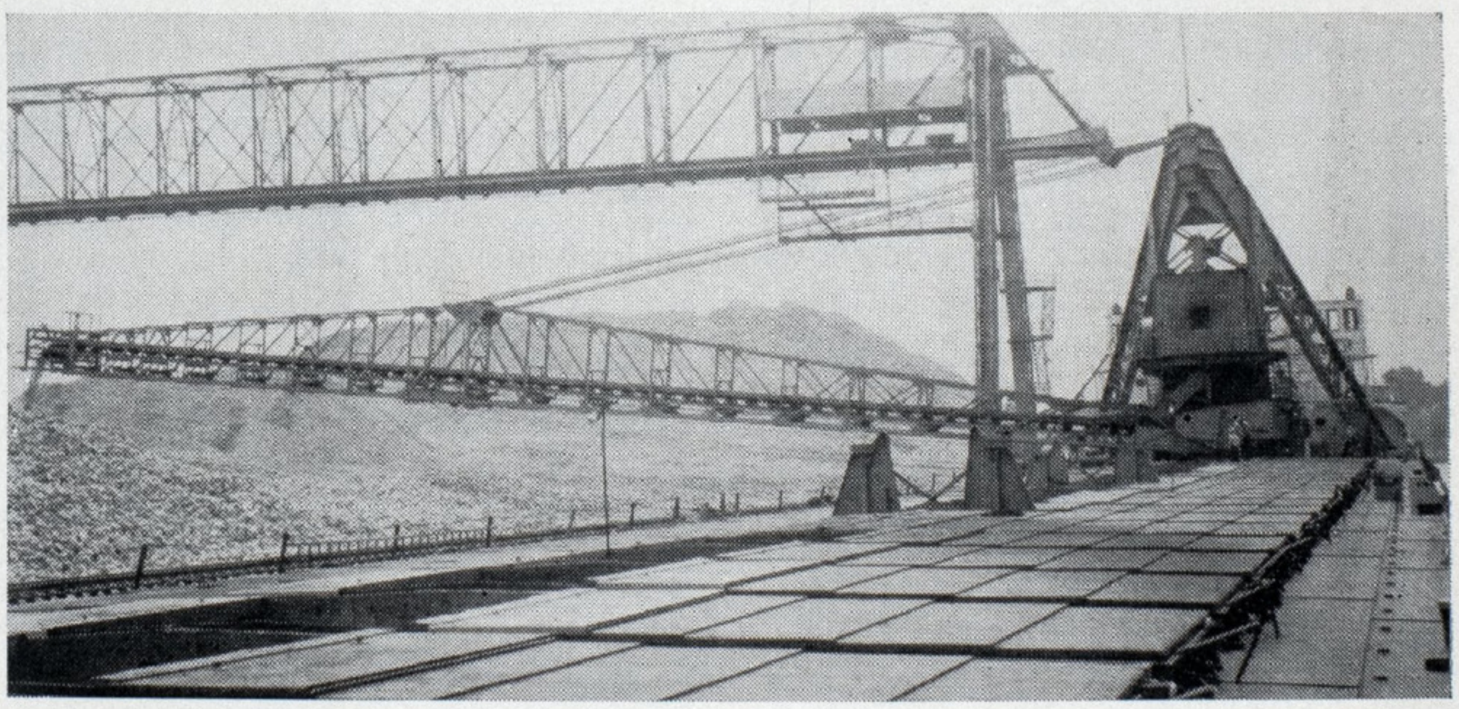
It is interesting to note how quickly the CONSUMERS POWER became a factor in transportation. As stated above, she was completed by the shipyard on June 29. The accompanying illustrations, showing this vessel in active operation, were taken at Fairport, O., on July 10 when she was delivering her third cargo. For such a brief period of operation this is rather an unusual record for a vessel that had gone through such a complete transformation from an ordinary bulk freighter, dependent on shore equipment for unloading, to a self contained unit able to discharge her cargo on any dock with sufficient depth of water to permit entry.

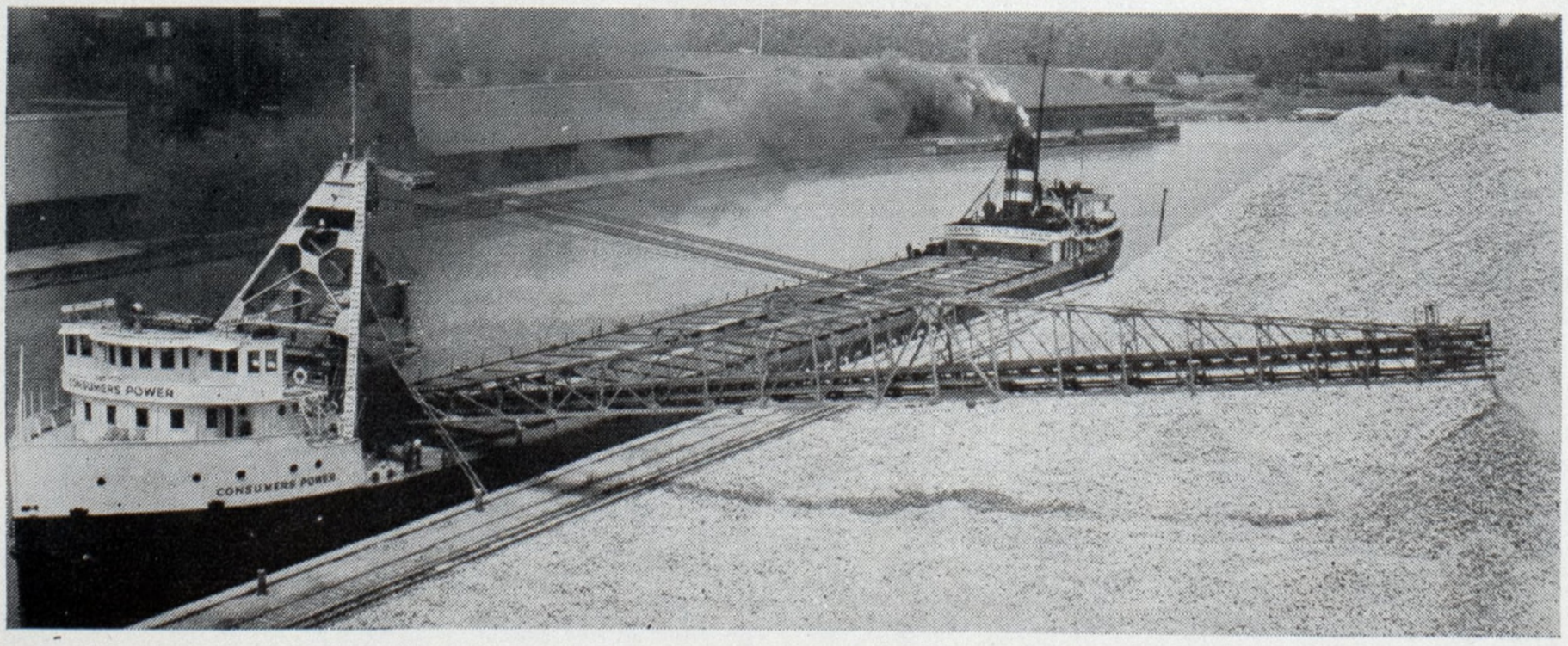
After delivering her first cargo of coal at Toronto, Ont., she proceeded to Sandusky, O., where she took on a cargo of coal which was delivered to Menominee, Mich. She then proceeded to Alpena, Mich., where she took on a cargo of lime stone. This was her third cargo and was delivered at Fairport, O., July 10, as shown in the accompanying illustrations.

Structurally, there is very little difference in any of these ships. A few improvements were made when the J. F. SCHOELLKOPF, JR. was converted. Further minor improvements have been made on the CONSUMERS POWER. The unloading boom is 185 feet in length; the longest ever to be fitted on a self-unloader. It also covers the same wide range of swing as in the other vessels, so that cargo may be dis-

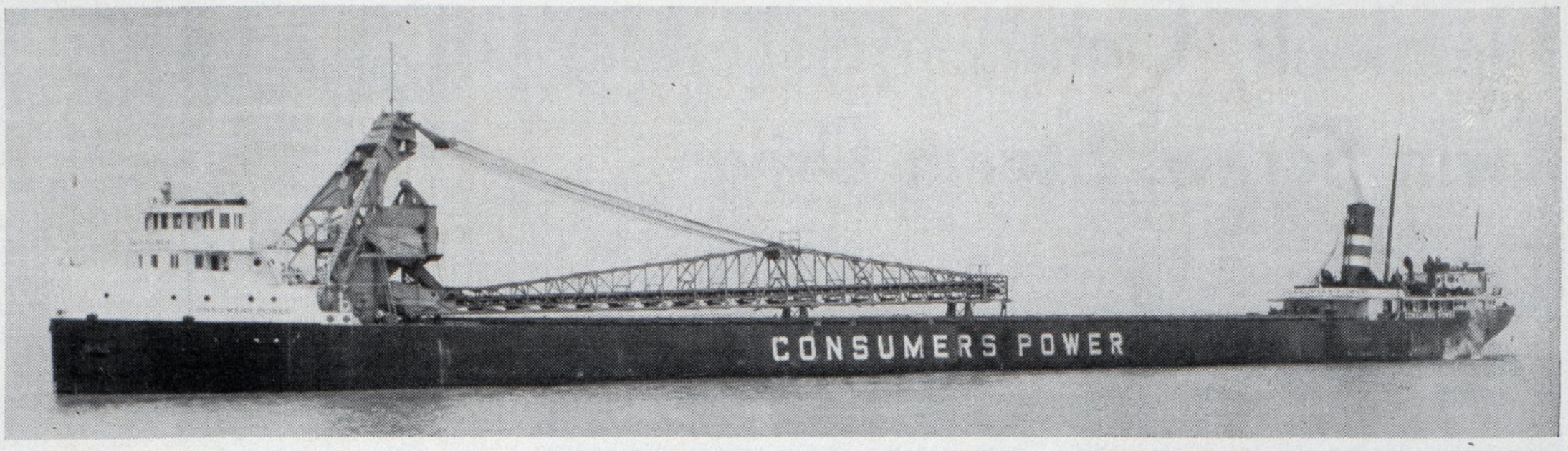
Principal Characteristics

Name	CONSUMERS POWER (Formerly Harry Yates)
Converted by	The American Ship Building Co.
Owner	American Steamship Co. (Boland & Cornelius, managers)
Work begun	April 12, 1934
Completed	June 20, 1934
Length overall, feet, inches	525 0
Length between p.p., feet, inches	504 0
Breadth molded, feet, inches	56 0
Depth molded, feet, inches	30 0
Gross tonnage	6391
Net tonnage	5082
Speed, in service, miles per hour	11½
Single screw, I.H.P @ 90 r.p.m.	2200
Cargo capacity, short tons (2000 lbs.)	8940
Propelling machinery, one, 3-cylinder, triple expansion steam reciprocating, engine.	
Cylinders, dia., inches	23 x 37 x 63
Stroke, inches	42
Boilers, two Scotch, size, feet	15 x 12
Complement, officers and crew, total	38
Classification	American Bureau of Shipping





THE Consumers Power, latest self-unloader, delivering cargo of limestone at dock of Diamond Alkali Co., Fairport, O., July 10. Third cargo since her conversion, the other two being coal cargoes



Consumers Power, recently converted self-unloader, off Fairport Harbor, O., with cargo of limestone, July 10, 1934

charged almost abreast the stern.

The engine room rearrangement is very similar to that of the J. F. SCHOELLKOPF JR. with the Elliott 500-kilowatt turbine generator set in the fantail. This compartment is now included in the engine room proper by the removal of the bulkhead, giving the entire plant an unusually fine appearance.

The hold conveyors by Robins, are identical to the SCHOELLKOPF installation except for a few minor alterations brought about by the differences in the two ships.

All crew's and owner's quarters were thoroughly reconditioned. A new hot water system was installed forward and aft. All rooms on the main deck forward have forced ventilation. A new house was constructed over the after deck house to accommodate ten men. The vessels, as reconstructed is now as modern in every respect as present day practice can make it.

The main particulars of the CONSUMERS POWER are given in the tabulation on the opposite page.

The present self-unloader fleet of the American Steamship Co., Boland & Cornelius, Buffalo, N. Y., managers, all of the vessels of which were converted from ordinary lake bulk freighters by The American Ship Building Co., at its Lorain, O., yard is as follows: THUNDER BAY QUARRIES, DIAMOND ALKALI, DOW CHEMICAL, J. F. SCHOELLKOPF JR. and CONSUMERS POWER. The names of all of these vessels except the SCHOELLKOPF were changed at the time of conversion: T. H. WICKWIRE JR. to THUNDER BAY QUARRIES; LOUIS R. DAVIDSON to DIAMOND ALKALI; WM. T. ROBERTS to DOW CHEMICAL; and HARRY YATES to CONSUMERS POWER.

New Passenger Record By Conte di Savoia

The Italian liner, CONTE DI SAVOIA, arrived in New York on July 4 from Italy, the Riviera and Spain, with 837 passengers.

On her return trip, sailing July 7 from New York for Gibraltar, Nice, and Genoa, she set a new record, carrying 2005 passengers in her four classes, with every cabin filled. This breaks the record made by the REX on June 23 when she sailed with 1942 passengers. The Italian line carried, during the two weeks since and including the record made by the REX, a total of 6408 passengers on its four ships, the REX, SATURNIA, ROMA and CONTE DI SAVOIA, including her record passenger list mentioned above.

According to Aroldo Palanca, general manager of the Italian line, all expectations have been exceeded by these continued heavy bookings, and not even during the prosperity years was there a greater rush of tourists to Europe.

The reduction of all hotel and railroad rates, and prices in general, for tourists to balance the new dollar value abroad, Mr. Palanca believes, is largely responsible for the revival of the tourist trade to Italy and the Riviera.

The current large number of tourists to Europe, the greatest since 1928, shows a return to more normal business conditions.

The REX sailed from New York on July 21 for Gibraltar, Naples, Nice, and Genoa with 1800 passengers. During the past month (up to July 21) the Italian line has carried eastbound a total of 9403 passengers on six ships, the greatest number of tourist to Southern Europe since the peak of the prosperity period.

Passenger Sailings Up

The SATURNIA of the Italian line arrived on June 26 in New York from Trieste, Ragusa, Naples, Palermo, Algiers and Gibraltar. She sailed on June 28 from New York for Spain, Italy, the Riviera and Adriatic ports with every cabin in her first and tourist classes occupied, a total of 1310.

On June 28 the ROMA of the same line arrived in New York from Mediterranean ports and sailed on June 30 from New York for a 53-day cruise of the Mediterranean, calling at ports in the Agean, Adriatic and Black seas, and touching at the Holy Land, Port Said and Russia. She carried a total complement in her three classes of 1125 passengers, first being full.

John E. Barkle, general manager, of the South Philadelphia works of the Westinghouse Electric & Mfg. Co., died suddenly at his home in Swarthmore, Pa., on July 10 at the age of 53. Born in Orbisonia, Pa., he was a graduate of Dickinson college and had been continuously in the service of the Westinghouse company for 33 years.

Open Bids for Lease of Norfolk Army Base

According to announcement received from James Craig Peacock, acting director of the shipping board bureau, department of commerce, bids were opened July 16, for leasing the Army supply base at Norfolk, Va., for a period of five years beginning Aug. 3.

The following bids were received: Virginia Piers Inc., $131,550 per annum; Jesse Rothman, acting for a corporation to be formed, $132,600 per annum; Virginia Terminals Corp., $141,000 per annum; and Norfolk Tidewater Terminals Inc., $100,000.

Before further action is taken by officials of the shipping board bureau the bids were to be analyzed and the capability and responsibility of the respective bidders determined.

The Norfolk Army supply base, one of the large terminal properties, under the jurisdiction of the shipping board bureau is now being operated by Norfolk Tidewater Terminals Inc. under a lease which has been cancelled by the secretary of commerce as of Aug. 2, on the ground that it was entered into without due advertising and competitive bidding, and with the further object of securing a revaluation of the rental value of the property. The old lease provided that the amount of rental should be 18 per cent of the gross revenue, with a guaranteed minimum of $75,000 per annum, whereas the new lease stipulates that rental shall be at a fixed monthly rate.

Hemlock, Lighthouse Tender, Twin Screw, Steam Drive

THE lighthouse tender HEMLOCK, latest to be completed in an extensive program of new vessels for the United States lighthouse service, had her official trials on Puget sound off Seattle, July 5, and as this is written (July 17), is awaiting acceptance, Her speed during the trials was 12.8 knots. The HEMLOCK will go into service in the sixteenth lighthouse district embracing the waters of Alaska.

Second of Her Type

Notification of the department's acceptance of its bid was sent to the Berg Shipbuilding Co., Seattle on Jan. 10, 1933, and formal contract was awarded shortly after. She was launched Jan. 20, 1934, and her builder's trial was held June 14, 1934. The bid price for constructing the HEMLOCK was $228,480, and the contract called for completion within 285 days. The cost of the vessel completely equipped is approximately $240,000. The work was carried out under the supervision of Thomas P. Fowler, superintendent of construction, United States Lighthouse service. General plans came from the department while W. C. Nickum, Seattle naval architect, made the hull drawings and the arrangements for the layout of equipment.

The HEMLOCK is a twin screw, steam, all steel, vessel, and is the second of her type to be built, the award for construction following closely upon the laying down of the tender ARBUTUS at Pusey & Jones Corp., Wilmington, Del. Both vessels were built from the same plans, the only differences being the closing in of the stern of the HEMLOCK, providing two additional staterooms on the upper deck, and the addition of special deep sea anchoring gear, a fathometer, and a gyro compass.

General Hull Characteristics

She has a length overall of 174 feet, 6½ inches, a length between perpendiculars of 163 feet, 6 inches, a breath molded of 32 feet, and a depth molded of 14 feet, 6 inches. On a mean draft of 10 feet, 7 inches, the load displacement is 770 tons in salt water. The fuel tanks have a capacity of 103 tons, giving the vessel a cruising radius of approximately 2000 miles at 13½ miles per hour.

The stem is raked and the stern is overhanging. There is a continuous main deck with closed inside gangways on both sides from the forward end of the main deckhouse aft and around the stern. Steel watertight shutters three feet square and 18-inch hinged airports are fitted in the gangways. Other features include a raised forecastle deck, a main deckhouse and partial upper deck, an upper deckhouse aft, pilot house with master's quarters, a steel derrick, mast and boom.

Seven Transverse Bulkheads

Space below the main deck is divided into eight compartments by transverse oil and watertight bulkheads. The main hold is arranged to contain galley fuel oil tank, drinking water tank, refrigerating machinery, steam hoisting engine and rig, shelves and locker for stowage of cargo. The lower decks between collision bulkhead forward and main hoist and aft of the engine room are arranged for crew's quarters. Officers' quarters are located on the main deck aft of engine room.

The power plant of this vessel consists of two, three cylinder, triple expansion steam engines built by the Washington Iron Works, Seattle. With twin screws, the speed is about 13½ miles per hour. Engines are 11½ x 19 x 32 inches diameter and 24-inch stroke. Each engine develops 500 indicated horsepower at 150 revolutions per minute, making a total of 1000 horsepower. Each engine drives a four-bladed propeller, 7 feet, 3 inches in diameter and 10 feet, 9 inches in pitch. The starboard propeller is right handed and the port propeller is left handed.

Steam is supplied by two Foster-Wheeler boilers, water-tube type, having a combined heating surface of 2500 square feet. The operating pressure is 200 pounds, but the boilers are suitable for a maximum of 225 pounds pressure per square inch. The boilers are oil fired through Mayflower oil burners supplied by Babcock & Wilcox Co.

Deck equipment, including steam steering gear, steam anchor windlass, cargo hoist engine, boat winch, and the reel for deep sea anchoring, was

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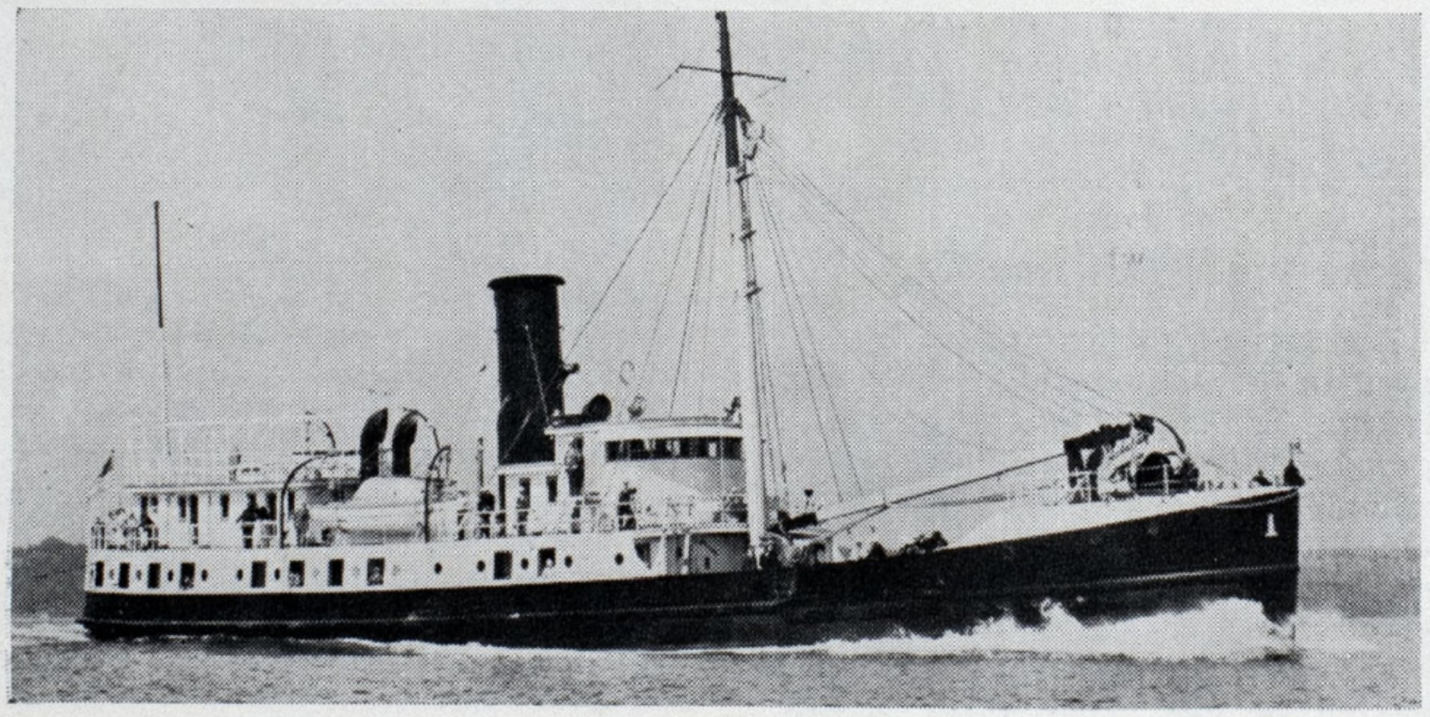
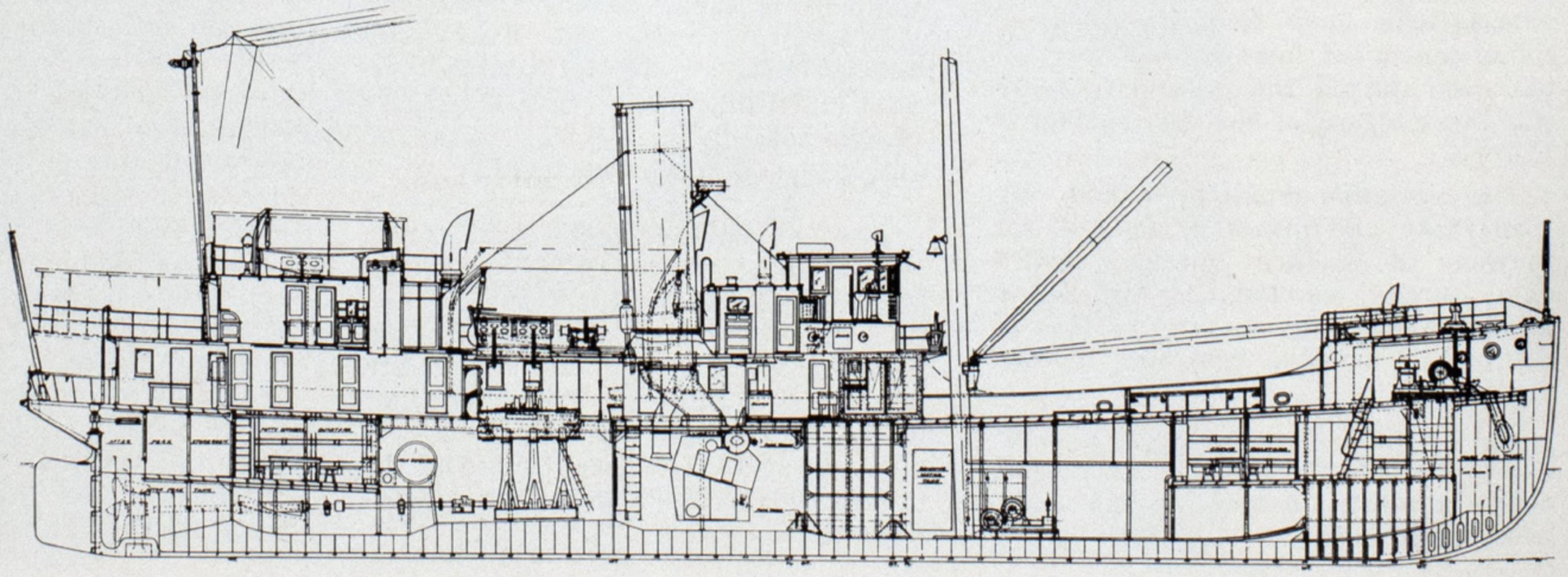


Photo by Kerwin, Seattle



HEMLOCK—Lighthouse tender. Twin screw, reciprocating steam engines. Speed 13 miles per hour. Built by the Berg Shipbuilding Co., Seattle. Line drawing does not show closing in of the stern

COMMUNICATIONS,

as Applied to the Merchant Marine

BY CAPT. S. C. HOOPER*

COMMUNICATION is defined as a transfer of ideas from one person to another, regardless of the location of the two parties involved, or the means by which the transfer is effected. Since prehistoric times, ships have utilized the seas for the same purposes as we do today, but until the advent of the twentieth century the only means of communication between ship and ship or between ship and shore, was obtained when within visual touch using the voice, smoke, whistles, flares, rockets, flags, or hoisted shapes. Otherwise, every vessel was cut off from the rest of the world by an apparently unbridgeable extent of space, preventing the exchange of ideas, or communication, which we find so indispensable now.

Rapid Development of Radio

The desirability of effecting a means of communicating with ships at sea was so obvious that after the first stages of radio development were successful, the new system was immediately and wholly utilized for maritime communication purposes. Although recognized as a magnificent achievement, few visualized, during those first few years of radio, how rapid would be its future development; how many useful applications would be discovered; how radio communication would become an integral part of the world's routine life.

Although radio progress has resulted in the formation of a distinct and quite complicated technical process, neither the general public nor the seafarer looks upon radio any longer as a mystical novelty. They see it now only as a commonplace established service, and are rapidly forgetting the days when maritime communication was considered a fantastic dream.

The value of radio communication is peculiarly realized by the seaman, since it furnishes him with the desired link to man's habitat and base, the shore. It also assists him in navigating the seas and in bringing assistance when in distress. Today, there is no scientific reason for any merchant ship, large or small, in any part of the world, to be denied the invaluable contact with the land afforded so conveniently by radio.

THE safety of life and property at sea often depends directly on the skilful use of established methods of communication. In this interesting article the author discusses their possibilities and limitations. It is the duty of every deck officer to acquire a thorough knowledge of all means of communication and to perfect himself in their effective practical application under the most difficult conditions. Only in this way can full advantage be taken of the extraordinary advances of modern science in aids to navigation.

Naturally, the first radio installations were crude affairs and could be relied upon only over short distances, but it was soon discovered that better equipment was possible and that the propagation characteristic of the various radio waves or frequencies on which signals were transmitted were decidedly different. The latter discovery was of far-reaching consequence, resulting in the first reliable long distance radio communication on what is now known as low frequency—between 10 and 100 kilocycles (30,000 and 3000 meters). Transmitting ranges were also greatly increased on other frequencies, now known as medium frequencies, but it was not until comparatively recent years that effective transmission was accomplished on frequencies above 4000 kilocycles, which, with suitable power and choice of frequency, can effect reliable communication to almost any point on the surface of the earth.

Value of Radio Communications

It is superfluous to say that radio is with us as a permanent fixture. Though technical methods and applications may vary, the process of exchanging ideas between one location and another, using means involving no actual physical connection by wires or other man-made conveyors, affords mankind one of its greatest boons. It is also obvious that the personnel of our merchant marine is well aware of the value of radio communication and will be thrown in contact with it more and more as developments progress. This fact calls for a certain amount of knowledge of radio communications on the part of merchant marine officers in order to fulfill their duties in an acceptable manner. It therefore appears desirable to explore further the applications of radio to the necessities of the merchant marine.

Applications of Marine Radio

The indispensable aid which radio offers to ships at sea may be divided into the following components or phases:

(1) Distress Communications.
(2) Navigational Aids.
(3) Commercial Communications.

Even if the radio could be used only in connection with distress communications, it would be of inestimable value. The addition of the other two components has afforded advantages to world-wide shipping which, twenty years ago, were never visioned. An outline of each of the services mentioned above will show exactly how radio assists our sea-borne commerce and citizens who travel by water.

Distress Communications

This, the first of the components or phases of communications above, may be divided into the following parts:

(a) Distress Signals.
(b) Rescue Communications.

Distress Signals

Nowadays, few persons would consider a sea voyage on a ship not equipped with radio transmitting and receiving apparatus. The number of lives which radio has saved at sea is not accurately known, but the average person throughout the world realizes fully what radio has done and is capable of doing for the mariner and traveler. International agreement provides for the form, power, and frequency upon which a distress signal may be sent whenever a vessel finds herself with disaster imminent.

Every ship equipped with radio and certain designated shore radio stations all over the world are required to stand a watch on the prescribed distress frequency of 500 kilocycles (600 meters), either continuously or for definite periods during every hour of the day. All vessels or sta-

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tions hearing a distress call are required to lend every possible assistance to the vessel in distress, if in a position to do so.

Rescue Communications

The receipt of a distress call by a ship or shore radio station sets in motion a comprehensive rescue communication system. All communications on 500 kilocycles (600 meters) must be reduced to a minimum necessary to properly conduct aid to the scene of distress. The vessel in distress, or another station designated by that ship must control all communications on the distress frequency. The shore radio direction-finder system is instantly mobilized to obtain bearings of the ship in distress, and to plot her position for the benefit of ships proceeding to the rescue.

Rescue ships obtain bearings with their own direction-finders if equipped with such device. Shore radio traffic stations advise other radio stations to remain silent if interference on the distress frequency is probable. The owners and the press are notified immediately. Every effort of radio is bent on successful rescue operations.

Obviously, to be efficient, strict supervision of radio communications is imperative during such a trying period. Masters of ships must then exercise the greatest vigilance in their communications, and prevent radio operators from transmitting superfluous messages concerning the distress case. Examples in this connection will be cited later on to show the necessity of all officers knowing the underlying principles of radio and having in mind at all times a broad knowledge of the world's radio communication system.

Navigation Aids

The value of radio under the second primary use, as an aid to navigation, cannot be emphasized too much. Under this heading, there have been developed a number of devices or services which have become indispensable to the successful navigator. The most important are:

(1) Radio direction-finders (radio receivers with loop—directional —antennas)
(2) Radiobeacons (fixed radio transmitters)
(3) Synchronized radio-sound devices
(4) Time signals (radio broadcasted)
(5) Fathometers (really sound devices)
(6) Weather broadcasts, storm warnings, hydrographic broadcasts.

Radio Direction-Finders

Radio direction-finders are most valuable in obtaining accurate radio bearings on distant or nearby radio transmitting stations. With this device on board, a radio bearing of a radio transmitting station may be obtained, which should normally be accurate within two to four degrees, the accuracy dependent upon the length of time since calibration and whether conditions have changed in the ship. If the geographical position of the transmitting station be accurately known, as is normally the case if the transmitting station is on shore, a line of position may be laid down on the chart from the direction-finder.

With simultaneous bearings of two or more shore stations affording a suitable cut, crossed lines of position are obtained, establishing a fix, the accuracy of which is of course dependent upon the accuracy of the individual bearings. Two or more bearings of the same station (with the known run between) may also be used, just as in the case of visible terrestrial objects. It is considered advisable that the navigating officer of the ship take the radio bearings personally.

Through a knowledge of the possibilities, peculiarities and limitations of the radio direction-finder as installed in his ship, the navigating officer may learn by experience the degree of reliance to be placed upon the various bearings obtained. For this reason the radio direction-finder should be installed on or near the bridge of the ship.

The value of the radio direction-finder in a fog is obvious, and it is likewise a valuable navigational check even in clear weather. An extensive automatic radiobeacon service has been established along many coasts of the world to afford suitable transmission for direction-finding by ships at sea. However, shore radio traffic stations transmitting on suitable frequencies may be used if their positions are accurately plotted on the chart.

The reverse of the process described above for ship-borne radio direction-finders is also used in the United States and other countries to aid ships in their navigation. A comprehensive system of radio direction-finder stations has been established along the various coasts. In this system it may be considered that the "radio lighthouse" is the ship at sea, the radio direction-finder where the bearing is taken being on shore, whereas in the radiobeacon system discussed previously, the radio station on shore is the "radio lighthouse," the bearing being taken from the ship.

In the case of the shore radio direction-finder system no direction-finder is required aboard the ship, which merely transmits certain prescribed radio signals which enable the shore direction-finder station to obtain a radio bearing, which is then transmitted back to the ship. Groups of direction-finder stations are located at the more important coastal entrances, thus affording simultaneous cross bearings or fixes to ships in these localities of heavy shipping.

Radio bearing from shore direction-finder stations are normally accurate within one to two degrees. Their accuracy is affected however by "night effect" and by geographical features in certain sectors. Bearings of doubtful accuracy are so designated by the shore direction-finder station when they are transmitted to the ship requesting them. The radio direction-finder service of the United States, operated by the navy, gives an average of 260,000 radio bearings per year, approximately nine-tenths of that number being furnished to the merchant marines of various nations.

A radio direction-finder requires an accurate calibration just as does a magnetic compass. For this reason and because of other readily-learned vagaries of the device, the deck officer should have a good working knowledge of its operation. He must be able to determine when a bearing has been improperly taken, or when errors may have been introduced due to changes of location of metal masses on deck or near the radio direction-finder, such as movable booms, and stays, etc., existing when the radio direction-finder was last calibrated. Broadcast antennas, rigged by the crew, and which are in inductive relationship to the loop of the radio direction-finder, are sometimes harmful and can set up errors to cause erroneous radio bearings to be received aboard the vessel.

Under the provisions of the safety of life at sea convention (London, 1929), passenger vessels of over 5000 gross tons will be required to have installed, radio direction-finders. Cargo vessels or those smaller than 5000 gross tons perhaps cannot be equipped for financial reasons, which indicates the necessity of maintaining shore radio direction-finders. But regardless of tonnage, the ship equipped with a radio direction-finder has a definite advantage over others, particularly if the deck officers and master become familiar with its operation, possibilities, and limitations, being thereby enabled to realize the desired results.

Many advanced officers prefer to take their own radio bearings as previously recommended herein, rather than to rely upon the radio operator who probably possesses no practical knowledge of navigation. At present about 30 per cent of all seagoing United States merchant ships of 1600 tons or over are equipped with radio direction-finders, and this number is increasing each year.

Radio Beacons

Radio beacons are merely automatic radio transmitters, each sending out a distinctive signal on which radio bearings may be obtained by means of a radio direction-finder installed

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THE WOLVERINE,

Some Notes and Reminiscences

By CAPT. W. M. McFARLAND

THE historical sketch of the old U. S. S. WOLVERINE (formerly MICHIGAN) in the July issue was very interesting and Mr. Bowen deserves the thanks of all who have any recollection of the old ship for the trouble he has taken to gather the facts and weave them into an attractive story.

I wish to add a few points of interest and to make one correction.

There were three instead of two sets of boilers. The first set was replaced in 1859 by Martin vertical watertube boilers. It was this second set which was replaced in 1892-1893.

It would have been a wonderful record of longevity if the original boilers had lasted almost fifty years.

Famous Experiments on Steam

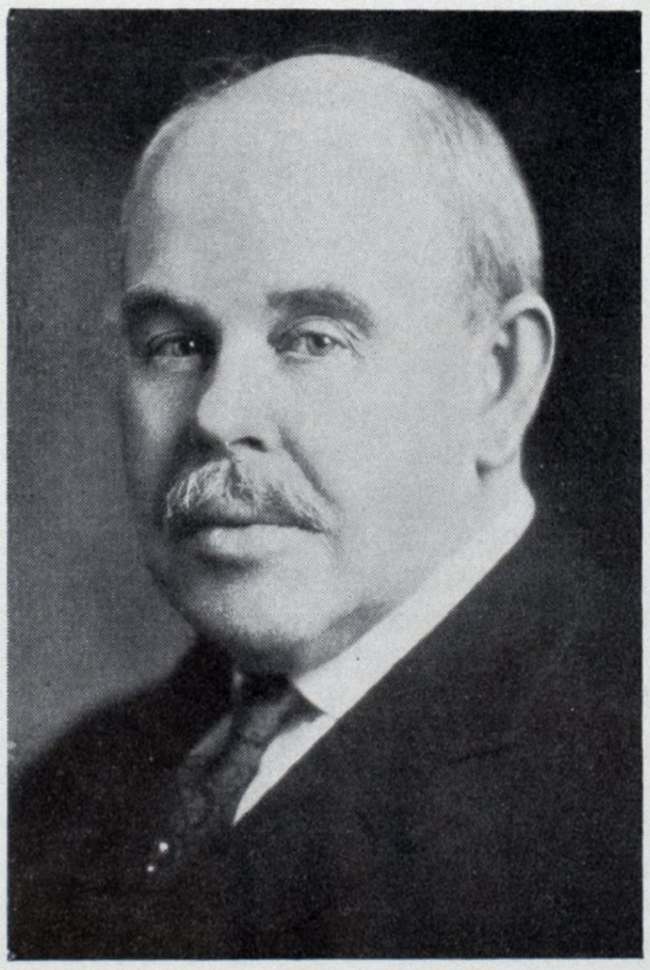
From an engineer's point of view, the great event in the history of the MICHIGAN (which made her name internationally known) was the famous series of experiments on the expansion of steam conducted by Chief Engineer (afterwards Admiral) B. F. Isherwood, from November, 1860 to February, 1861. These were made to answer experimentally the question as to how far expansion could be carried advantageously and with economic gain. Some designers, forgetting that steam is a vapor and not a perfect gas, and also not appreciating the effect of the cylinder surfaces in causing internal condensation, ran away with the idea that expansion might be carried quite far, say five or six times with steam of 25 or 30 pounds gage pressure.

Isherwood was a student but very practical and a firm believer in testing theory by actual work. His study and observation had convinced him that, with the slow-moving engines of that time and the very moderate pressures, the useful economic range was much less, and the going much beyond two expansions would cause an actual loss.

In one way the MICHIGAN'S engines were peculiarly adapted for the test. They were fitted with poppet valves actuated by Sickles' cut-off. This enabled the point of cut-off to be varied (as I remember) from about one-eighth to three-quarters of the stroke. It was probably this feature that caused the selection of the MICHIGAN; also, of course, as she was laid up for the winter, it did not divert her from other duty.

The experiments showed that, under the conditions mentioned above, the point of maximum economy was at about two expansions, and that there was a very distinct loss at the higher ratios. As the greater ratio of expansion meant a larger and heavier engine, there was this additional reason against unduly high ratios for marine purposes. So far as I can now recall, these were the first carefully conducted experiments of this kind and they had a marked effect on design. The older text books on the steam engine always referred to Isherwood's MICHIGAN experiments and usually gave abstracts of the results. Any reader who enjoys antiquarian research will find them reported in detail in Isherwood's *Experimental Researches in Steam Engineering*. (Most technical libraries have a set of this work).

I was attached to the MICHIGAN as an assistant engineer in the navy, from June, 1882 to July, 1883. While in drydock at Detroit in July of 1882, we fitted a couple of under water valves to provide connections for deck pumps. This was to enable water to be pumped for washing decks, instead of drawing it by buckets, and also to fill the tanks with clean water while in mid-lake. Apparently it had been thought that, as all the lake water was fresh, potable water could be obtained even in port. The highly civilized (?) method of discharging sewage into the lakes had ended such a belief. I remember inspecting the cutting of the hull plates for the valve openings and the splendid appearance of the material. It was in fact, as stated, charcoal iron, or in other words fine boilerplate material. It is interesting to note also that the rivet heads were all conical. Possibly the work was before the days of countersunk flush riveting. (I wasn't enough of an antiquarian in those days to go back over the records and indeed had no opportunity).



Capt. W. M. McFarland

It would be interesting to one who could consult a complete file of *Navy Registers* to go over the list of officers who have served on the MICHIGAN and note how many have become famous. Perhaps the best known is Gridley, who commanded the OLYMPIA at the battle of Manila Bay. Among others who became admirals were Jouett, Kantz, Swinburne and Rees.

Tribute to an Oldtimer

Among the officers themselves, probably the best known "character" was Boatswain Patrick Murphy whose whole mature life was connected with the ship. He once told me that he raised the flag when the ship was formally placed in commission in 1844. He had filled many ratings on board, but for a number of years before my time had been pilot. He was competent, conscientious and faithful and endeared himself to all by his amiability and skill. As a reward of long and faithful service, he was appointed boatswain in the navy, but continued as pilot until he retired.

He seemed to know every part of the lakes perfectly, and it used to be said, laughingly, that he could dip up a bucket of water and, by tasting it, tell where he was in a fog. He had lived so long on the lakes and had observed the weather so carefully that he was a wonderful "weather prophet." We all had such confidence in his judgment that, if he said it would not rain although the sky was overcast and threatening, we would go ashore without a raincoat—and he never failed.

When the time came for his retirement, the officers on the ship got in touch with all the other officers who had previously served with him and a fund was raised to procure a handsome silver service which was pre-

(*Continued on Page* 40)

World Shipbuilding Shows Substantial Increase

FURTHER increases in the volume of the world's merchant shipbuilding, especially in motor vessels, are shown by the returns of Lloyd's Register of Shipping for the quarter ended June 30 last. A gain of 137,000 gross tons, or about 13 per cent more than the total under way at the end of the March quarter, is reported for all merchant vessels of 100 gross tons and over under way in all countries except Russia.

The present world total of 1,216,340 gross tons is nearly 500,000 tons above the amount of shipping under construction at this time last year. Great Britain and Ireland alone are now building 105,000 tons more than they were at the end of March. For the United States the increase during the last quarter was 247 tons.

Gain in Shipbuilding

The following comparison is given of gross tonnage of shipbuilding in hand during the last two quarters:

	June 30, 1934	Mar. 31, 1934
Great Britain and Ireland..	587,142	481,440
United States	27,581	27,334
Other countries	601,617	570,397
World total	1,216,340	1,079,171

Great Britain and Ireland are now building nearly one-half of all the merchant tonnage being constructed throughout the world, their proportion standing at 48.3 per cent, as compared with 44.6 per cent at the end of the March quarter. The United States has only 2.3 per cent. as against 2.5 per cent in March, and the other countries, taken as a group, are now building 49.4 per cent of the total, as contrasted with 52.9 per cent in the March quarter.

The total of new merchant shipbuilding begun during the quarter ended June 30 was nearly twice the volume of that launched in the same period, replacements being 122,000 gross tons more than the shipping sent down the ways toward completion. For Great Britain and Ireland, new construction represented more than four times the tonnage launched.

Comparisons between the new work begun and the shipping launched during the last two quarters are shown in the following table of gross tons:

New Work

	June 30, 1934	Mar. 31, 1934
Great Britain and Ireland..	146,653	202,612
Other countries	121,150	256,323
World total	267,803	458,935

Launchings

Great Britain and Ireland..	35,828	34,839
Other countries	109,319	50,528
World total	145,147	85,367

Increased construction of steam and motor tankers of 1000 gross tons each, and upwards, is shown in the following table of gross tonnage:

	June 30, 1934	Mar. 31, 1934
Great Britain and Ireland..	101,500	82,526
Denmark	34,950	16,070
Holland	26,770	23,570
Germany	24,900	24,900
Sweden	24,700	32,100
United States	23,400	14,100
Japan	19,200	19,200
Italy	17,900	17,900
Others	4,524	18,212
World total	277,844	248,578

Of the total of 277,844 gross tons of tankers now building, 240,420 tons are motor vessels.

Increase in Motorships

Sharp increases in the volume of motorships under construction were reported in the quarter just ended, their total showing an increase of more than 100,000 gross tons, while for all other types of vessels combined the gain over the March quarter was only 33,000 tons. The bulk of this increase was in Great Britain and Ireland. The comparison for motorship construction for the last two quarters is given in the following gross tonnage table:

	June 30, 1934	Mar. 31, 1934
Great Britain and Ireland..	279,632	175,687
Japan	116,680	119,590
Denmark	57,450	44,390
Holland	51,330	50,880
Sweden	49,025	45,800
Italy	46,700	46,700
Germany	43,600	47,530
United States	6,319	5,919

As a result of the increase in motorship building about 57 per cent of all merchant ships now building will be run with internal combustion engines, the remaining 43 per cent being composed of vessels of all other types. A comparison for the past two quarters is given in the following table of gross tonnage.

	June 30, 1934	Mar. 31, 1934
Motor vessels	692,535	588,589
Other types	523,805	490,582
Total	1,216,340	1,079,171

For the first time in their history, Great Britain and Ireland are now devoting almost 50 per cent of their construction to motor vessels. In the March quarter only 36.5 per cent of the building in these countries was composed of motorized ships, while in the quarter just ended the proportion increased to 47.6 per cent. For the other countries, taken as a group, 65.6 per cent of the total present construction is motorships, as compared with 69.1 per cent in the March quarter.

The contrasts in types of building in these groups of countries at present are shown in the following tonnage table:

	Great Britain and Ireland	Other Countries
Motor vessels	279,632	412,903
Other types	307,510	216,295
Total	587,142	629,198

Returns giving the aggregate power of all types of marine engines being built or installed throughout the world, show a marked gain in the production of oil engines, the total indicated horsepower advancing from 668,219 in the March quarter to 817,499 in the quarter just ended. For Great Britain and Ireland the total rose from 174,132 at the end of March to 276,311 at the end of June. Japan's figure advanced from 122,760 to 125,080; Germany's from 73,729 to 79,031, and Sweden's from 50,492 to 74,642. For Holland there was a decrease from 92,540 to 69,700, while Italy's total rose from 18,250 to 57,500, and Denmark's from 42,750 to 48,580. The United States showed a slight decline from 11,626 to 11,165.

Steam Turbine Horsepower Up

For steam turbines the aggregate shaft horsepower for all countries advanced from 513,848 at the end of the March quarter to 595,407 at the end of June. Great Britain and Ireland showed a slight decrease, their figure falling from 310,835 shaft horsepower to 308,380; but the total for France grew from 186,300 to 224,300, and for Germany from 11,123 to 50,727.

There was also an advance in the indicated horsepower of steam reciprocating engines during the last quarter, the total for all countries rising from 112,958 to 138,018. For Great Britain and Ireland the gain was from 75,758 to 94,528.

There were no radical changes during the quarter just ended in the relative production ranking of the various shipbuilding countries. Spain, with a decrease of about 14,000 tons dropped from ninth place to last, bringing the United States, with a gain of only about 250 tons, from tenth place to ninth.

How the various countries compared in shipbuilding output during the last two quarters is shown in the following table of gross tonnage:

	June 30, 1934	Mar. 31, 1934
Great Britain and Ireland..	587,142	481,440
Japan	137,280	122,590
France	104,500	103,188
Germany	91,145	82,650
Denmark	66,650	51,140
Holland	54,765	51,315
Sweden	49,025	47,340
Italy	47,670	47,670
United States	27,581	27,334
Spain	20,592	34,480

Six large merchant vessels, of 20,000 gross tons and upwards are now being built; but five of these are under construction in Great Britain, which had three of this type building in the previous quarter. France has the other large ship in hand, as in the March quarter.

Withdrawal of Leviathan Considered Likely

Realizing that the operation of the LEVIATHAN would mean a very substantial out of pocket loss, the International Mercantile Marine Co. made a proposal to the secretary of commerce, under whose control the shipping board bureau now comes, that if allowed to forego the stipulated sailings of the LEVIATHAN the company would set aside a sum equal to the estimated loss to be used in financ ng the building of a third liner of the MANHATTAN-WASHINGTON type. After careful consideration and a favorable recommendation from H. H. Heimann, then director of the shipping board bureau, Secretary Roper decided to refuse the company's offer and insisted on the operation of the LEVIATHAN according to the terms of the contract.

It was found that the losses were much higher than had been estimated, totaling approximately $250,000 for the first two voyages, whereas the company's estimate had been $80,000 a voyage. The application to be relieved from operating the LEVIATHAN was, therefore, renewed. It is now understood that it is likely to receive favorable consideration and that the sailing of the LEVIATHAN on July 21 will be her last. Reports indicate that President Roosevelt considers the construction of a new liner of greater benefit to the merchant marine than any possible prestige which can come from operating the LEVIATHAN. Obviously the financial showing of the LEVIATHAN, with huge losses resulting to the operator, has strengthened this point of view, and it is now more than likely that the company's proposition will be accepted.

This is a very important decision as it will mean the commencement of the building of a third liner of the efficient and popular MANHATTAN-WASHINGTON type. Plans, it is said, are now ready and it should not take long to arrange the terms of a building contract.

Board Suspends Rates

The acting director of the shipping board bureau, James Craig Peacock, announced on July 12 that the department has suspended the rate tariffs filed to become effective Aug. 1 by the Nelson Steamship Co. and the Quaker line, two members of the conference of steamship lines operating in the intercoastal service under conference rates. All members of the conference have resigned to take effect Aug. 1. The suspended schedules contain substantial reductions from the rates now in effect.

The period of suspension runs until Dec. 1, 1934, unless changed by further order of the department. During this period the two companies are forbidden to change the rates now in effect except by special departmental permission.

The department's orders of suspension set forth that the rights and interests of the public and the purposes of the shipping act will be adversely affected if the suspended schedules are permitted to become effective, and the shipping board bureau is directed to investigate the lawfulness of the rates, charges, regulations, and practices contained therein.

The bureau is already engaged in an extensive investigation of conditions in the intercoastal trade, and hearings have been held in New York, San Francisco and New Orleans. On July 12 a further hearing was held in New York to consider replies to questionnaires sent out by the bureau on May 8, 1934, to carriers in the intercoastal trade.

Improvement in Shipping

A notable improvement in American shipping is evident from information recently published by the department of commerce.

The gross sea-going tonnage in active service at the end of 1933 was 15 per cent greater than the year before. This recovery applied to both foreign and coastwise trades; foreign recording a gain of 24 per cent as compared with 10 per cent for coastwise. Combination vessels, freighters and tankers all participated, but the first group did so only to a small extent as compared with the second and third group.

The largest gain, 366,000 gross tons, was for freighters engaged in foreign trade. This increase amounted to 48 per cent over the tonnage in service at the end of 1932. Gross tonnage of tankers in foreign trade increased by 104,000 gross tons, or 35 per cent.

Participation of American shipping in the transport of goods between the United States and foreign countries, based on the value of merchandise carried, was about the same as in 1932. There was a slight gain, from 34.2 per cent to 35 per cent for exports, and a fractional reduction for imports from 36.2 to 35.8 per cent.

According to an announcement issued by the General Electric Co., orders received for the second quarter of 1934 amounted to $54,005,988, compared with $35,539,858 for the second quarter of 1933, an increase of 52 per cent. The second quarter of 1934 was the largest since the third quarter of 1931.

Orders received for the first six months of 1934 amounted to $80,983,093.60, compared with $61,773,414.19 during the corresponding period last year, or an increase of 31 per cent.

The Shipping Code Status Remains Unchanged

A general code for the shipping industry is still in abeyance since the refusal of the President to approve the provisions of the code presented by General Johnson, and on which agreement had been reached within the industry. The President withheld his signature, it is understood, on the representation by other government departments of the danger of becoming involved in discussions of rights of foreign nations under existing treaties because of the rate stabilization features.

The prolonged waterfront and marine workers strike on the West coast revived the possibility of re-opening the question of approval of the general code. General Johnson in his speech at Portland, Ore., expressed the opinion that the marine labor difficulties might have been settled had there been a shipping code.

Under the terms of the President's executive order, permitting General Johnson to put in operation divisional codes where a master code may prove impossible, it is readily conceivable that the shipping industry might be divided into groups for this purpose. Such action without Presidential approval is limited to groups involving less than 50,000 workers.

It is clear that steamship companies have sincerely tried to formulate a general shipping code for trade practices and labor questions. What the result will be with reference to the formulation of separate divisional codes is uncertain as this is written.

Ocean Mail Contracts

By executive order, dated July 11, President Roosevelt has directed the postmaster general to investigate all ocean mail contracts and to make recommendations as to modification or cancellation. The postmaster general must complete his investigation within six months from the date of the order.

It is possible that this marks the beginning of a complete change in the method of aid for the merchant marine. As is well known, the President is in favor of a straight out subsidy instead of the present system of mail contracts.

Forty-four ocean mail contracts are now in effect. The total amount paid by the government under these contracts in the fiscal year, 1933, was $26,054,000. The executive order also includes an investigation of foreign air mail contracts.

Action will be taken at once by the post office department to carry out the President's order. The plan of procedure had not been worked out as this is written.

Late Decisions in Maritime Law

Legal Tips for Shipowners and Officers

Specially Compiled for Marine Review
By Harry Bowne Skillman
Attorney at Law

ARBITRATION clause in a charter party requiring arbitration of any dispute "arising during performance" was intended to require arbitration of all disputes arising, although performance on both sides had terminated, it was held in the case of Re Utility Oil Corp., 69 F. (2d) 524. In construing an arbitration clause, the whole clause should be considered and not parts of it.

* * *

A VESSEL owner is not bound to equip her with every known safety device nor to adopt all the latest improvements under peril of his ship being held unseaworthy. Latest improvements or not—the question is one of reasonable fitness for the undertaking.—CABO HATTERAS, 5 Fed. Supp. 725.

* * *

RECITAL in bill of lading that bales of dry salted goat skins are "shipped in good order and condition" was held, in the case of Cohen v. Holland—America Line, 6 Fed. Supp. 247, to refer only to external condition, which was clearly satisfied, even though the burlap was spotted and the hoops rusted. The steamship line carrying the bales of skins would not be liable for damage due to sweating.

* * *

A TUG towing a chartered barge is primarily liable for its negligence, causing damage to the barge, and the charterer is only secondarily liable.—Century Indemnity Co. v. New York Tank Barge Co., 6 Fed. Supp. 280.

* * *

PROVISIONS of steamship passage ticket requiring notice of claim to be given within 45 days after death and that suit be commenced within one year after lodging of claim are binding, said the court in the case of Lee v. Swedish American Line, 6 Fed. Supp. 342, even though the deceased was a three-year old infant traveling on her mother's ticket, and suit not commenced until after expiration of the one year period was barred, through notice of claim was given within 45 days after death; both requirements of the passage ticket should have been met in order to maintain an action.

* * *

A CARRIER surrendering goods to the consignee and waiving its promise of the consignee to pay the freight, may recover the freight from the consignee; a consignee who receives goods under a bill of lading which incorporates the charter provisions is personally responsible for the freight, and it is no defense that the goods were damaged through the carrier's fault, although any such damage may be offered against the claim for freight by recoupment or cross-libel. A carrier who has given a clean bill of lading, stating that cargo has been received in good order when it was at the time manifestly damaged, is estopped to deny the truth of the assertion against a purchaser of the bill of lading who has been misled by the representation and has altered his position on the faith of the representation.—Munson Steamship Line v. Rosenthal, 6 Fed. Supp. 374.

* * *

CLAUSE of contract for discharge of cargo, providing for increase of rates if wage scale was increased, did not apply, it was held in the case of ALBISOLA, 6 Fed. Supp. 392, to contingency of cargo being damaged, though longshoremen under contract with stevedoring company received higher wages because of handling the cargo under distress conditions, where the wage scale was not changed. The local custom of a port regarding increased compensation for unloading damaged cargo did not apply where a nonresident party to the contract did not know of it, and the contract fixed the rate for discharging cargo without limiting it to sound cargo; knowledge of a custom cannot be presumed except in case of custom prevailing generally in the trade or business in which both parties are engaged.

* * *

BASED on privity of contract, a shipper has a right of action against a carrier for loss of merchandise, though the title thereto passed before liability arose.—Samuel Sanday & Co. v. United States, 6 Fed. Supp. 597.

* * *

THE judgment of those on the spot at the time of a collision is entitled to greater weight than the opinion of those who seek to criticize after the event. On the basis of this declaration, it was held by the court in the case of ALGONQUIN, 6 Fed. Supp. 644, that the evidence in proceedings to limit liability negatived negligence or errors of judgment in handling a steamship disabled by collision, and in declining a tug's assistance and offer of an acetylene torch to sever the anchor chain.

* * *

PHRASE, "dangers of navigation," within an exception to a contract to carry and deliver cargo in good order, is equivalent to "perils of the sea." A peril of the sea is that danger that comes when wind and wave in their fury work their will with ship and cargo after the owner has used all reasonable effort to make the ship seaworthy and well qualified to withstand those hazards and perils that the owner knows or has reason to believe must be encountered. The phrase does not mean danger or hazard, but comprises such accidents as arise from the elements and which could not be prevented by any care and skill of the master and crew. Seaworthiness means such fitness as to structure, lading, captain, crew, etc., as will enable a ship to encounter the winds and battering waves of the seas that must be encountered during the season and in the places where the ship must travel so that its cargo will be carried safely and delivered in good condition.—Norris Grain Co. v. Great Lakes Transit Corp., 70 Fed. (2), 32.

* * *

WHERE the channel of the river where a collision occurred took a curving course, and the vessels were meeting and not crossing courses, the fact that one vessel was on the starboard bow of the other vessel did not make the starboard hand rule applicable.—CARISO, 6 Fed. Supp. 743.

* * *

AS, UNDER a New York statute, a vessel may elect to engage a pilot or to have the ship piloted by its master or own officers and pay pilotage, a pilot engaged to pilot ship was an "employe" within the Jones act, as regards liability for the pilot's death; however, seamen who rowed a yawl from the pilot boat to the steamship to take the pilot from the steamship were not employes within the Jones act as regards liability for their deaths.—Peterson v. United New York Sandy Hook Pilots' Assn., 6 Fed. Supp. 649.

Marine Business Statistics Condensed

Record of Traffic at Principal American Ports for Past Year

New York

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
June, 1934	239	1,696,804	324	1,785,815
May	291	1,597,233	316	1,662,711
April	288	1,599,185	274	1,477,492
March	302	1,706,307	313	1,757,221
February	265	1,481,004	267	1,508,905
January	266	1,649,590	284	1,629,438
December	263	1,496,477	291	1,576,199
November	243	1,257,443	277	1,452,269
October	278	1,573,534	268	1,487,369
September, 1933	294	1,847,558	289	1,771,847

Philadelphia

(Including Chester, Wilmington and the whole Philadelphia port district)
(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
June, 1934	61	191,042	53	155,308
May	58	169,719	50	143,652
April	67	199,032	48	147,083
March	59	162,480	48	140,311
February	42	129,940	36	109,973
January	45	139,259	47	133,427
December	54	175,715	45	135,969
November	47	144,111	40	119,896
October	68	186,588	51	152,700
September, 1933	65	182,418	44	126,290

Boston

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
May, 1934	105	301,785	82	245,571
April	86	309,725	58	227,404
March	88	304,604	64	259,406
February	71	247,077	46	162,542
January	97	330,320	60	225,075
December	84	303,806	52	236,871
November	90	323,540	62	230,969
October	96	335,488	60	210,010
September	110	348,981	80	279,531
August, 1933	129	453,348	101	329,686

Portland, Me.

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
June, 1934	15	30,296	16	43,232
May	15	27,376	15	32,378
April	14	20,555	15	20,572
March	13	33,399	13	33,399
February	11	27,213	11	27,213
January	9	22,908	10	25,570
December	13	31,801	13	32,589
November	15	29,335	18	35,579
October	14	27,953	14	32,913
September, 1933	15	26,225	12	28,028

Providence

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
June, 1934	8	14,773	4	4,887
May	3	4,985	1	2,022
April	3	4,985	1	2,022
March	5	17,973	2	7,422
February	7	20,959	2	6,882
January	2	7,694	.....	.....
December	5	5,089	2	8,350
November	3	8,568	4	12,794
October	4	13,606	4	9,730
September, 1933	2	4,430	5	13,279

Portland, Oreg.

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
June, 1934	10	34,726	1	2,298
May	11	41,765	17	58,993
April	31	117,094	42	157,954
March	32	121,085	50	186,817
February	25	95,774	52	198,593
January	32	116,610	50	188,401
December	31	119,833	51	184,646
November	29	108,890	35	130,457
October	26	102,926	46	173,030
September	25	97,576	38	141,839
August, 1933	22	83,506	34	129,908

Baltimore

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
June, 1934	108	339,280	112	356,445
May	104	329,312	107	328,998
April	102	300,396	108	334,583
March	92	288,061	88	273,131
February	77	261,122	77	263,236
January	78	256,942	80	265,681
December	94	298,001	92	286,746
November	90	270,023	88	267,784
October	88	284,997	90	289,864
September	85	273,994	84	270,189
August, 1933	95	299,114	98	307,841

Norfolk and Newport News

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
June, 1934	39	91,293	57	127,068
May	31	71,706	50	103,737
April	21	65,701	47	125,291
March	23	64,469	60	151,360
February	16	47,708	41	102,933
January	22	68,930	41	112,922
December	17	57,307	42	119,186
November	19	55,692	49	115,584
October	16	56,239	49	125,591
September, 1933	15	47,575	35	89,775

Jacksonville

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
June, 1934	16	21,226	18	30,898
May	14	13,340	22	38,824
April	10	10,464	7	12,164
March	9	16,338	9	11,193
February	8	10,900	11	20,348
January	7	13,017	10	22,508
December	8	15,083	11	22,837
November	8	13,405	8	19,108
October	11	24,365	6	8,893
September, 1933	8	11,528	7	13,086

Key West

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
June, 1934	28	33,701	25	32,548
May	40	57,180	42	58,094
April	28	36,197	21	36,066
March	24	38,052	23	37,658
February	23	36,476	24	36,523
January	25	39,966	22	38,764
December	22	38,764	22	38,764
November	23	33,556	22	31,330
October	22	37,180	23	39,878
September, 1933	22	38,648	23	38,659

Mobile

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
June, 1934	119	254,040	115	237,054
May	115	255,503	114	253,294
April	113	254,839	103	239,371
March	115	275,629	129	309,123
February	115	268,707	112	251,232
January	118	282,972	125	298,570
December	123	279,151	109	253,209
November	114	260,755	114	249,344
October	118	247,474	124	297,436
September, 1933	116	265,547	113	266,183

Seattle

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
June, 1934	16	73,128	12	52,309
May	22	103,441	19	86,295
April	62	264,608	67	278,172
March	52	203,796	51	205,371
February	54	226,118	62	251,281
January	52	221,000	55	230,995
December	54	225,842	60	246,987
November	54	222,914	51	211,474
October	58	253,865	59	254,959
September, 1933	35	154,233	40	174,263

New Orleans

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
June, 1934	141	300,349	151	416,734
May	167	482,123	152	421,839
April	169	487,655	170	475,121
March	155	422,855	166	449,394
February	151	446,952	145	414,515
January	146	423,759	145	414,918
December	139	398,112	152	443,496
November	148	439,238	152	430,631
October	154	467,332	169	506,324
September	154	443,981	168	470,271
August, 1933	144	420,570	151	429,183

Charleston

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
June, 1934	36	95,072	31	81,094
May	36	98,475	23	69,764
April	38	101,315	34	96,705
March	44	131,839	37	109,492
February	40	112,884	39	109,597
January	23	60,138	25	66,827
December	35	111,420	32	97,473
November	43	123,628	39	109,151
October	34	97,585	33	91,526
September, 1933	42	116,048	32	83,944

Galveston

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
June, 1934	25	57,920	71	215,594
May	21	34,457	56	141,885
April	27	50,294	82	219,283
March	29	54,379	94	264,101
February	22	41,945	77	236,784
January	23	43,664	86	252,595
December	19	40,552	90	279,537
November	16	37,590	85	262,800
October	21	44,388	104	304,402
September	10	19,602	94	277,642
August, 1933	19	44,012	69	205,442

Los Angeles

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
June, 1934	201	743,198	186	738,880
May	200	754,695	197	738,307
April	186	696,716	167	679,883
March	168	669,548	169	691,230
February	154	629,859	165	624,170
January	176	686,201	146	616,189
December	169	639,444	164	629,462
November	143	539,624	162	592,724
October	160	623,572	152	592,212
September, 1933	154	562,597	152	561,294

San Francisco

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
June, 1934	126	386,966	110	456,027
May	152	452,827	140	593,715
April	165	831,501	169	729,273
March	150	659,251	181	772,219
February	141	503,105	154	659,366
January	163	722,800	197	764,823
December	137	616,820	172	739,604
November	144	619,874	182	806,020
October	169	753,650	168	717,133
September, 1933	150	654,888	141	658,887

Houston

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
June, 1934	27	115,730	33	133,108
May	29	109,223	45	132,318
April	31	121,318	40	155,327
March	23	89,200	39	144,546
February	22	88,094	26	99,931
January	23	88,164	37	128,773
December	18	65,566	31	109,206
November	14	49,486	30	106,943
October	28	105,818	41	151,872
September, 1933	20	70,827	27	89,893

Note: At the port of Philadelphia, additional vessels in the foreign trade (via other American ports) were 77 of 249,565 net tons entered and 74 of 248,643 net tons cleared for the month of June.

Latest Data on New Marine Work

Information on New Ships Ordered—Building and Repair Contracts Let—Shipping Board Loans Made, Authorized or Pending

BIDS are to be opened at the navy department, Washington, D. C., on Aug. 15 for the construction of 24 naval vessels. Under the 1934-35 program the following vessels are to be constructed:

One, 8-inch-gun, heavy cruiser at not over 10,000 tons standard displacement; three, 6-inch-gun, light cruisers, each not over 10,000 tons standard displacement; two heavy destroyers, each of not over 1850 tons standard displacement; 12 light destroyers, each of not over 1500 tons standard displacement; and six submarines, each of about 1300 tons displacement.

The four cruisers were authorized by act of congress Feb. 13, 1929. The naval appropriation bill for 1935 carried authorization for funds to begin their construction. Under terms of the London naval treaty, the keel of the heavy cruiser cannot be laid until Jan. 1, 1935.

The public works administration will provide funds for the construction of the 20 smaller vessels. Construction of these vessels was authorized by act of congress March 27, 1934. This act provided that the first and each succeeding alternate vessel of each category shall be constructed in government navy yards and other government establishments.

There is, however, an exception made to this rule, leaving it to the discretion of the President, if it is found inconsistent with the public interest in any year to follow the rule laid down, to direct the building of such vessels in government or private yards as he may see fit.

Diesel River Towboat

The contract for the construction of the twin screw diesel river towboat for the Vicksburg, Miss., office of the United States engineers, has been awarded to the Marietta Mfg. Co., Point Pleasant, W. Va., on its low bid of $314,750 and 180 days.

This vessel is to be of all steel construction, 176 feet in length, 38 feet in beam, and 8 feet, 6 inches in depth. The two main propelling engines are to be direct reversible, Winton diesels, each developing 650 brake horsepower at 250 revolutions per minute. Diesel engines will also be furnished by the Winton Engine Corp. for driving one 25 kilowatts generator, and one 15 kilowatts generator. The generators in each case are to be supplied by the General Electric Co.

Other auxiliaries include capstans by the Marietta Mfg. Co., hauling winch by the American Engineering Co., heating boiler by the Crane Co., Chicago, and refrigerating plant by Frank Husband Co., Pittsburgh.

Patrol Boats Launched

The Marietta Mfg. Co., Point Pleasant, W. Va., has launched two of the three patrol boats under construction for the United States coast guard.

The first named the NIKE was launched on June 23. The second, the NEMESIS, was launched July 7. The sponsor was Mrs. C. P. Kendall, wife of Commander Kendall of the coast guard. No announcement has been made as this is written as to the time of launching the third patrol boat which is to be named the TRITON.

The patrol boats are exactly similar to the ones building at the Manitowoc Shipbuilding Corp., Manitowoc, Wis., and Lake Union Dry Dock and Machine Works, Seattle.

Sponsored by Elizabeth Mary Farley, young daughter of Postmaster General James A. Farley, the destroyer AYLWIN was launched at the Philadelphia navy yard on July 10.

The new vessel is of 1500 tons displacement and is 334 feet long. She will have four 5-inch guns and four triple torpedo tubes.

The keel for the new aircraft carrier, the U. S. S. ENTERPRISE, was laid on July 16, at the yard of the Newport News Shipbuilding & Dry Dock Co. The work on her sistership the U. S. S. YORKTOWN, occupying the neighboring ways, was commenced on May 21.

Launch Destroyer at Bath

The Bath Iron Works Corp., Bath, Me., will launch destroyer U. S. S. DEWEY on July 28. The sponsor is Miss Anna M. Dewey.

This is the first naval vessel launched at Bath since the reopening of this historic yard. It is one of the first group of destroyers under construction since the completion of the wartime program in 1920. The building was authorized under acts of congress Aug. 29, 1916, July 1, 1918 and July 11, 1919. It is understood that the contract was placed toward the end of 1931.

The DEWEY is of 1500-ton standard displacement, and is a sistership of the FARRAGUT launched at the Fore river plant of the Bethlehem Shipbuilding Corp. Ltd., Quincy, Mass., on March 15. Three other similar vessels of the same group are also under construction, one each, at the New York navy yard, the Boston navy yard and the Puget Sound navy yard. The one at the New York navy yard named the HULL was launched on Jan. 31, while the one building at the Boston navy yard, to be named the MACDONOUGH will be launched on Aug. 22.

Boston Army Base Leased

On July 12, James Craig Peacock, acting director of the Shipping board bureau, department of commerce, announced that Acting Secretary of Commerce Dickinson has approved the recommendation of the president of the Merchant Fleet Corp. that the lease to operate the Boston Army base terminal be awarded to Piers Operating Co., Boston, at an annual rental of $65,711.

Bids for the operation of the Boston Army base were opened on June 11, 1934, as noted in an item published in the July issue of MARINE REVIEW. Piers Operating Co. was the high bidder. The lease covers a period of five years.

United States Engineers

Bids were received until July 25 for the construction and delivery afloat to the depot of the United States engineer office, Memphis, Tenn., of one 65-foot steel anchor barge. The other dimensions of the barge are breadth of hull, 20 feet, depth, 5 feet. The steel plating is to be generally of ¼-inch and 5/16-inch thickness.

The office of the United States engineers at Kansas City will receive bids until noon Aug. 3 for instruments and equipment for Fort Peck electrical system.

The same office will receive bids until noon Aug. 2 for supplying machinery and other parts of derrick boats.

The first commercial towboat voyage from New Orleans to Chicago since the opening of the Illinois waterway was completed June 27 when the towboat FLORINE reached the latter city. The trip from New Orleans required 27 days. The cargo was oil.

Tanker Franklin Completed Diesel-Electric Drive

The diesel electric tanker FRANKLIN, recently completed by the Sun Shipbuilding & Dry Dock Co., Chester, Pa., and the twenty-second vessel of the Atlantic Refining Co.'s fleet, sailed July 6 from Philadelphia for Rochester, N. Y., with a cargo of gasoline and kerosene.

The FRANKLIN and a similar vessel the WHITE FLASH, owned by the same company, are among the largest all-welded ships in the world. No rivets whatever were used in their construction. The FRANKLIN will operate between the recently constructed terminals of the Atlantic Refining Co. at Rochester, Syracuse, Albany, N. Y., and Newark, N. J.

The propelling machinery of the new tanker consists of two six-cylinder 9½ x 10½ inches, solid injection, McIntosh-Seymour diesel engines of 250 horsepower each at 600 revolutions per minute. Each engine drives a direct current generator supplying power for an electric motor direct connected to a single propeller shaft.

Dimensions of the WHITE FLASH which are understood to be similar to those for the FRANKLIN are as follows: length overall, 201 feet, 2 inches; length between perpendiculars, 190 feet; beam molded, 34 feet; depth molded, 12 feet; and draft, 9 feet, 6 inches. The displacement loaded is 1330 tons, and the cargo capacity is 1000 tons. Speed in service is 9 knots.

Capt. Mark K. Huber, until recently master of the motorship DOLOMITE No. 1, is commander of the FRANKLIN. John D. Carver is chief engineer. Lester M. Goldsmith, consulting engineer, for the Atlantic Refining Co., made the first voyage on the FRANKLIN

Christened GRAF SPEE in honor of Admiral von Spee who commanded the German fleet destroyed by the British off the Falkland Islands, Dec. 11, 1914, the third "vest-pocket" battleship was launched at Wilhelmshafen, Germany on June 30.

The new vessel is a sistership of the DEUTSCHLAND and the ADMIRAL SCHEER, and was constructed at a cost said to be approximately $32,000,000.

The GRAF SPEE, like her sisterships, is propelled by diesel engines developing a total of 54,000 horsepower. Her speed is from 26 to 28 knots.

Machinery for Cutters

The navy department, which has under construction seven ocean going cutters for the coast guard, has awarded a contract to the Westinghouse Electric & Mfg. Co. for their main propelling machinery at a cost of $1,700,000. This machinery, for twin screw drive, will be double reduction geared steam turbines of 7000 estimated horsepower for each vessel. Condensers and auxiliaries will also be supplied by Westinghouse.

Four of the cutters are to be constructed at the navy yard, Philadelphia; two at the navy yard, New York; and one at the navy yard, Charleston, S. C.

The general characteristics of the cutters are: length overall, 327 feet; length between perpendiculars, 308 feet; beam molded, 42 feet; depth molded amidships, 23 feet; 6 inches; and displacement, 2000 tons. Oil fired watertube marine boilers will supply steam. The speed is to be 20 knots and each vessel is to have a cruising radius of 8000 miles.

The Westinghouse Electric & Mfg. Co. is also furnishing the geared steam turbines for the three single screw coast guard vessels of the ESCANABA type now under construction at the Pusey & Jones Corp., Wilmington, Del. These cutters are to be named ALGONQUIN, COMANCHE and MOHAWK. This machinery has already been delivered.

The Cunard superliner will be driven by four propellers. Each propeller, it is estimated, will absorb about 50,000 horsepower. These propellers, of manganese bronze, will each weigh 35 tons and cost approximately $35,000. The first of the four propellers, which are being cast in London, were shipped to John Brown's shipyards at Clydebank, around the middle of July.

Tide Water Oil is Building Terminal at Boston

Announcement was made on July 19 by Edward L. Shea, president of the Tide Water Oil Co., that the company will proceed at once with the building of a 45-acre, fireproof, marine petroleum terminal on the Chelsea river in Boston harbor. This project will give employment to between 500 and 1000 men.

Ultimate development of this terminal will provide for the storing, in fireproof tanks, of 43,000,000 gallons of petroleum products. Immediate plans call for the erection of eight large tanks with a capacity of 21,500,000 gallons, together with ample warehouses, garages, loading facilities and a large dock to serve the ocean-going and coastwise vessels and barges of the company.

Contracts have already been awarded for the foundations and tanks and the entire project is planned for completion by Jan. 1, 1935.

"This project," said Mr. Shea, "is another step taken by the Tide Water Oil Co. to round out its program of developing water terminals along the Atlantic coast, which has been in progress for the past eight years. Through the chain of terminals and its marine fleet which, in 14 years has grown from one small coastwise vessel of 6500 barrels capacity to 14 large vessels of 904,000 barrels capacity, the company can now avail itself of the lowest cost transportation facilities for the distribution of its products in any area. The latest features of design will be incorporated to make this one of the most modern fireproof marine terminals in the world."

The fuel oil for 40 ships of the United States fleet, during its stay in New York harbor recently, was supplied by the Shell Eastern Petroleum Products Inc., and the transportation of the fuel oil was handled by the Seaboard Shipping Corp., New York.

The fueling of these two cruisers and thirty-eight destroyers was begun on June 12 and finished on June 15.

Bunker Prices

At New York

	Coal F. o. b. per ton	Fuel oil alongside per barrel	Diesel engine oil alongside per gallon
July 19, 1934	5.63@5.48	1.35	4.79
June 19	5.63@5.48	1.35	4.79
May, 18	5.63@5.48	1.35	4.79
April 19	5.63@5.48	1.35	4.79
Mar. 19	5.35@5.20	1.25	4.79
Feb. 19,	5.35@5.20	1.25	4.79
Jan 18,	5.35@5.20	1.25	4.79
Dec. 18,	5.35@5.20	1.25	4.79
Nov. 18	5.35@5.20	1.15	4.70½
Oct. 18	5.00@5.75	1.15	4.70½
Sept. 18	4.45@4.75	1.15	4.70
Aug. 18, 1933	4.45@4.75	.90	4 32

At Philadelphia

	Coal trim in bunk per ton	Fuel oil alongside per barrel	Diese engine oil alongside per gallon
July 19, 1934	4.93@4.78	1.35	4.76
June 19	4.93@4.78	1.35	4.76
May 18	4.93@4.78	1.35	4.76
April 19	4.93@4.78	1.35	4 76
Mar. 19	4.65@4.50	1.25	4.76
Feb. 19,	4.65@4.50	1.25	4.76
Jan. 18,	4.65@4.50	1.25	4.76
Dec. 18,	4.65@4.50	1.15	4.76
Nov. 18	4.65@4.50	1.15	4.76
Oct. 18	5.00@5.75	1.15	4.76
Sept. 18	4.45@4.75	1.15	4.88
Aug. 18, 1933	4.45@4.75	.90	4.28

Other Ports

July 19, 1934

Boston, coal, per ton	$ 8.00
Boston, oil, f. a. s. per barrel	$1.25
Hampton Roads, coal, per ton, f.o.b. piers	$5.00
Cardiff, coal, per ton	13s 6d
London, coal, per ton	—s —d
Antwerp, coal, per ton	16s 6d
Antwerp, Fuel oil, per ton	—s -d
Antwerp, Diesel oil, per ton	—s -d
British ports, Fuel oil	—s -d
British ports, Diesel oil	—s -d

Note: Figures given for coal at New York and Philadelphia are for Classes A and B according to the Code; Class C is slightly less.

Heavy Summer Travel on Panama Pacific Line

Capacity sailings and long waiting lists for the summer sailings of the PENNSYLVANIA, VIRGINIA, and CALIFORNIA of the Panama Pacific line would seem to indicate that economic conditions are greatly improved. Not since 1931 has intercoastal travel on this line reached such proportions. First class bookings show an increase of 60 per cent. Advance bookings for the summer months are about 400 per cent better than for the same period in 1933.

On June 30 the CALIFORNIA sailed with a full list of passengers in both first and tourist classes, and there was a waiting list of 400 to absorb any last minute cancellations. By June 15 all westbound sailings were practically sold out through July and part of August, and all eastbound sailings between July 3 and September were booked full.

A wide choice of itineraries is offered for the land portion of the tour and the rates, including all necessary expenses, begin at $299 for the 24-day tour.

Diesel Tankers Completed

The Barge canal and Great Lakes fleets of the Standard-Vacuum Transportation Co. were recently augmented by the addition of two new self-propelled tankers of the canal type, when the motorship NEW HAVEN SOCONY and the motorship PLATTSBURGH SOCONY were launched, June 1 and June 29, respectively, at the Staten Island plant of the builder, the United Drydocks Inc.

These two tankers, identical in design and of standard framed and riveted construction, are the first two of three barges of like size, ordered from United Drydocks last November, and to cost approximately $350,000 each. They are builder's HULL NOS. 822 and 823, and in cargo capacity and general characteristics are similar to the SCHENECTADY SOCONY and AMSTERDAM SOCONY, built several years ago. Approximately four months was required from laying of the keel to launching.

It is planned to launch the POUGHKEEPSIE SOCONY, third of the series, about the middle of August. This vessel has already attracted marked attention among the marine fraternity at the port of New York, since it is the largest all-welded merchant vessel ever laid down in this country. The framing is of "flat bar" type, designed by the owners, and the methods of construction have involved some very interesting developments in ground welding of large assembled members, such as the main trunks, bulkheads and the like.

Owing to the similarity, it will suffice to describe the motorship NEW HAVEN SOCONY, a 1200-gross ton twin-screw diesel driven canal tanker of 13,500 barrel cargo capacity. This vessel is 260 feet long overall (252 feet between perpendiculars); 40 feet molded beam, and 14 feet molded depth. The vessels are classed by the American Bureau of Shipping. Main propelling engines for each vessel are two McIntosh-Seymour 6-cylinder, direct reversible air injection diesels of 375 brake horsepower each.

Auxiliaries are operated by two generator sets, consisting of 60 kilowatts, 120-volt, direct current, Diehl Mfg. Co. generators, driven by McIntosh, solid injection, three-cylinder diesel engines of 95 brake horsepower each at 450 revolutions per minute.

Of the deck machinery, the windlasses and warping capstans were manufactured by the American Engineering Co., as was also the steering equipment.

Pumps throughout are the product of the Northern Pump Co. and all are driven by motors made by the Diehl Mfg. Co. which, in fact, supplied all electrical equipment on the vessels. There are two cargo pumps (Northern series "Z"), capable of handling 1000 barrels per hour against a 200-foot head; these have built-in herringbone reduction gears, with flexible couplings on extension shafts.

The main air compressor is of Worthington manufacture, a 3-stage, 375 revolutions per minute, with capacity of 50 cubic feet at 1000 pounds discharge; driven by a 30 horsepower Diehl motor. A service compressor is provided of the 2-stage type, 5½ cubic foot capacity, 150 pounds air pressure.

A Lux fire fighting system, supplied by the Walter Kidde Co., is installed; the engine telegraph is by Cory and the compasses by Negus.

Miss Ewing, sponsor, and J. W. Powell, president, United Dry Docks Inc., at launching of New Haven Socony at Staten Island, N. Y.

Welded Construction for New Naval Vessels

An article in the June-July issue of the *Shipyard Bulletin*, published by the Newport News Shipbuilding & Dry Dock Co., calls attention to the increased welding applications for naval vessels in order to secure lighter hulls with greater strength, and that this development has made it necessary for the shipyard to make major additions to welding equipment and to augment its force of trained welding operators. This has been found necessary in order to carry out the extensive welding required on the airplane carriers YORKTOWN and ENTERPRISE, both of which are now under construction at the yard.

Development of the application of welding in ship construction at the Newport News yard includes increased training, extensive research, new welding procedure planning, installation of new welding machines, building large plate slabs, increased safety provisions on galvanized steel, and altered erection procedure. Research on welding also includes new base and filler metal and thicker material, extensive investigation of stainless steel welding and fabrication for shipshape gasoline stowage tanks of large size. Monel and aluminum arc welding has been done successfully.

Full Size Experiments

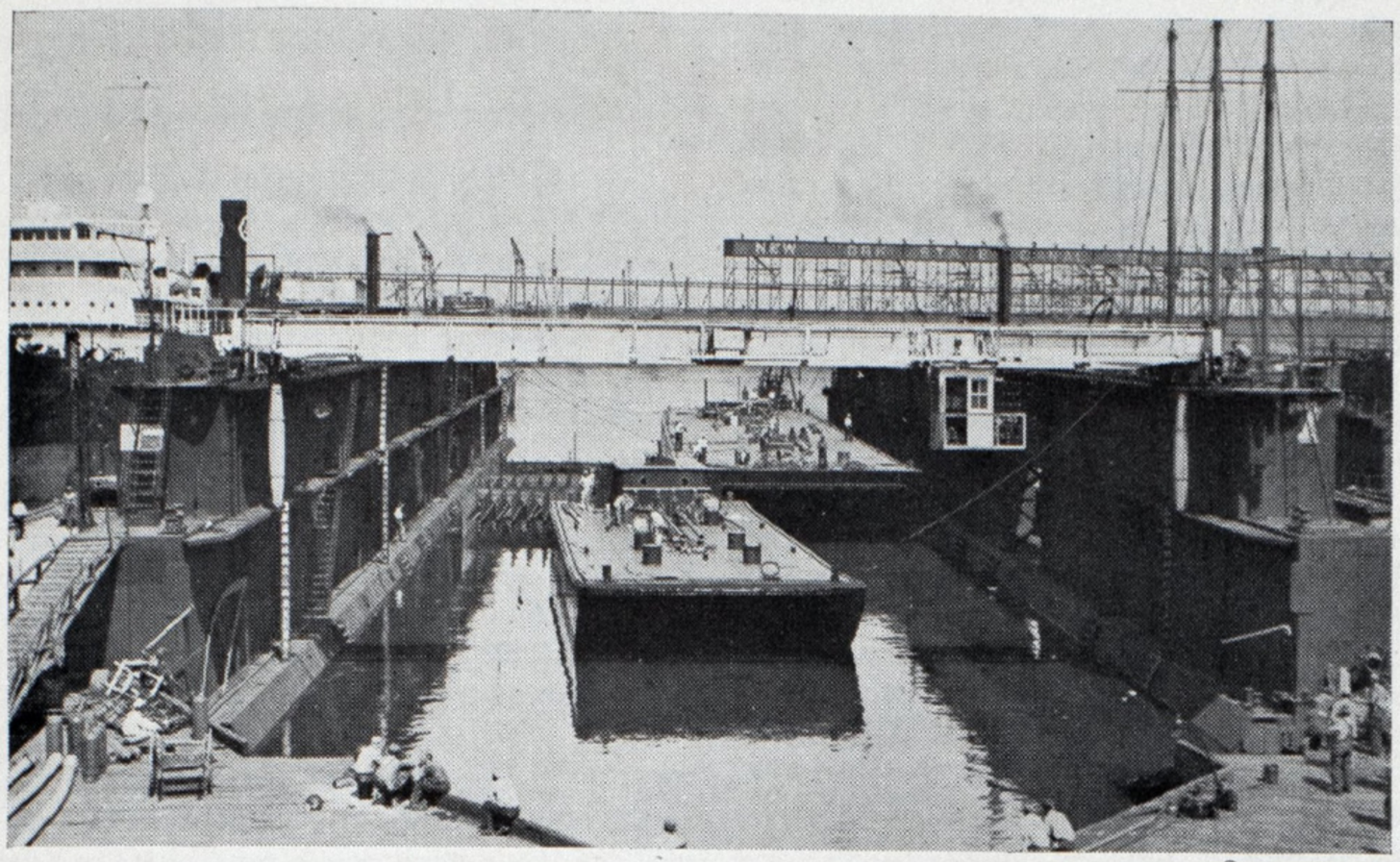
Experimental full sized sections of floors, longitudinals, and bulkheads have been made to solve the problem of shrinkage and sequence of welding. The instructions covering welding procedure operations form a large book which is issued part by part to supervisors as the work progresses.

Heavy plate joints have been developed to reduce the amount of weld filler metal deposited and to facilitate welding. High tensile alloy steel has been experimentally welded, for which a special technique was created.

Electrodes of all kinds are tested regularly in order to solve unusual problems, in addition to routine checking of commercially covered electrodes purchased for general welding of mild steel parts. This item is of particular importance as up to the time of writing a total of 710,000 pounds of electrodes have been ordered for this new construction.

Current for welding is supplied by two sub-stations with four new and two old 1500-ampere multiple operated generators and three 10,000 volts alternating current transformers, necessitating unusually large electrical cables at the shipways. Twenty single operator welding machines supply current for particular purposes.

Certification of 130 welding operators and 85 track welders has recently been accepted by the superintending constructor of the navy, stationed at the yard.



Twin Launching of Two Oil Tank Barges from Floating Dry Dock

Two All-welded Tank Barges Launched from Drydock

ON JULY 10 the Truss-Weld division, United Dry Docks Inc.. launched two oil tank barges of its patented all-welded construction from the floating drydock at its plant in the Crane-Twenty-seventh street yard of the company in Brooklyn, N. Y. The launching was accomplished while two similar vessels in the process of construction were under way on the drydock. This is the first launching carried out by the Truss-Weld division on its new floating building plant. of which it took possession when the Staten Island yard, at Mariners Harbor, became crowded with naval construction and other work. Officials of the company see in the new method many marked advantages, of speed and economy.

Work Progresses Quickly

Both of the vessels were launched on the fortieth working day after their first plate was laid. They are the barge GLOBE No. 10 and the barge RICHFIELD No. 21.

The first of three sister barges, GLOBE No. 10, is a 150,000-gallon non-propelled tanker, of truss-weld construction, built for the Globe Oil Delivery Corp., 155 East Forty-fourth street. New York, under the direct supervision of that company's president, E. L. Halstead. Its dimensions are: length, 100 feet; breadth, 30 feet; depth, 8 feet; it is of rake type, with 10 foot rake forward and 5 feet rake aft, 12-inch sheer forward and 6-inch sheer aft, with deck crowned 6-inch and with 6-inch deadrise on the bottom.

The hull is divided by one centerline and four thwartship bulkheads, into six compartments; three port and three starboard. It has a steel cabin 20 x 12 x 7 feet, located aft, with a bulkhead separating the crew's living quarters and the machinery room. Drive shafts lead through the side of the cabin to the pumps on deck.

The pumping arrangement is an unusually simple and effective one, designed by H. E. Read, vice president of the owning company, and consists of two Mack engines of the automotive type, direct connected to two 6-inch 750 gallons per minute Viking pumps, with normal pump speed of 200 revolutions per minute and engine speed of approximately 1000 revolutions per minute. The regular automotive clutch and change-speed gears are utilized, a distinct advantage where there is excessive back pressure to overcome. The engines may be operated singly or in battery; when used together they will empty an entire 150,000-gallon cargo in 1 hour and 45 minutes through the two 6-inch pipe lines provided.

Large Capacity Tank Barge

The remaining two sister ships will be delivered in early August. RICHFIELD No. 21 is a 550-000-gallon non-propelled oil barge, built for the Newtown Creek Towing Co., 17 Battery place, New York. It is of patented truss-weld construction, and is classed by the American Bureau of Shipping. Its overall length is 208 feet; breadth, 40 feet; depth at side, 12 feet 6 inches; it is of rake type, fore and aft, and has a one-foot sheer fore and aft. The hull is divided, by one centerline and six athwartship bulkheads, into ten compartments (5 port and 5 starboard) and two peak compartments. Aft, there is a steel cabin 12 x 16 x 7 feet, on the port side of which is the stairway entrance to the pump room. Walls and ceiling are insulated and composition floor covering is provided.

The cargo pumps consist of two Waterous bronze-fitted rotary pumps, with 8-inch suction and discharge, capable of delivering 850 gallons per minute at 60 pounds discharge pressure and at an operating speed of 420 revolutions per minute. These are driven by 20-inch double-stage Coppus steam turbines, equipped with totally-enclosed constant speed governor and excess-speed safety trip; they drive through double reduction gears of the herringbone type. The turbines are designed to operate at 3400 to 3800 revolutions per minute and at steam pressures from 90 to 120 pounds; they are nominally rated at 50 horsepower, with 100 pounds of steam.

The piping consists of two 8-inch suction lines beiow deck. Six-inch valved and bellmouthed suctions are installed in the after end of each tank near the centerline bulkhead and each connected to its respective port and starboard main suction line. The main suction lines are cross-connected so that either pump may pump from any cargo compartment.

History of a Drydock

A history of unusual interest, going back to the days of the Spanish-American war, attaches to the floating drydock plant which the Truss-Weld division of the United Dry Docks has especially equipped as its building plant.

This five-section steel floating drydock of 8725 deadweight tons lifting capacity, had been built for the Spanish government for use in Cuba. When war was declared, the new dock was at sea, on its way to Cuba; but the tow never reached its destination, for the United States struck quickly, capturing it and bringing it back to Pensacola, Fla. For a number of years, the dock was used there by the United States navy, until it was bought by a predecessor company of United Dry Docks and brought north to Brooklyn.

Equipped as it now is with a 5-ton traveling crane of the overhead type, which can travel the entire length of the dock in one minute and has a span of 91 feet, it serves as a compact and efficient shipbuilding unit, which shows up well both during construction and at launching time. It is equipped with twenty 12-inch centrifugal pumps, electrically operated, for raising and lowering the dock and is 450 feet long over the outriggers (383 feet 4½ inches exclusive of outriggers); the floor is 74 feet, 7½-inches wide and, at top of the dock wings, the width is 90 feet 7½ inches. Water, air and electricity are avaiilable on the dock and special lighting equipment makes it possible to work at all times.

Builds Huge Caisson for Mid-town Tunnel

The huge steel caisson for the Manhattan lock of the long planned mid-town Manhattan-Weehawken vehicular tunnel under the Hudson river was towed up the river to its position at the foot of Thirty-ninth street, New York city, arriving about noon July 17. This 675-ton steel structure, box-like in form, was built by the Federal Shipbuilding & Dry Dock Co., Kearny, N. J., and was towed from the builder's yard to its position on the New York side of the Hudson river without mishap of any kind by the builder's tug Federal No. 1 in charge of Capt. Eric Iverson. The delicate operation of moving the great steel cube started on the evening of July 16. An overnight stop was made at Pier 1, Staten Island because of the tide. From this point it required 3½ hours the next morning for the tow to Thirty-ninth street, Manhattan. It was made fast at the bulkhead line in about 4 minutes.

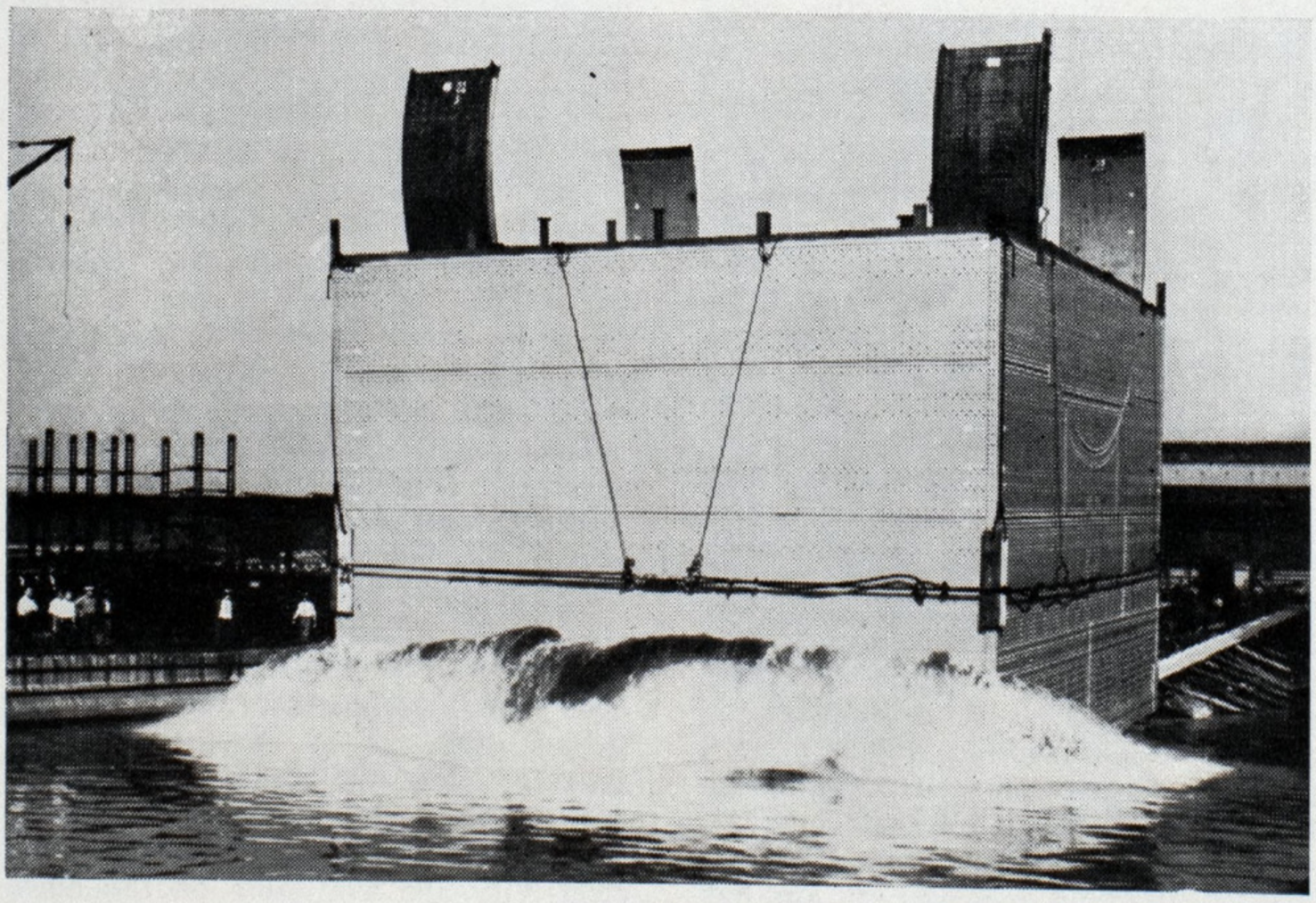
The launching of the caisson took place without ceremony in early July, at the Kearny plant of the Federal Shipbuilding & Drydock Co., on the Hackensack river. A watertight wooden bottom was built into the caisson at its cutting edge, for launching purposes. The caisson then was drydocked, the wooden bottom removed and the necessary finishing touches given it in preparation for its trip down the Hackensack river to Newark bay and thence via the Kill Van Kull to the Hudson river.

The caisson, designed as a "box within a box," is now 30 feet high, standing about 12 feet above the water line, and measures approximately 52-feet by 42-feet. Its outside wall plates are ⅞-inch thick and its inner walls ½-inch thick; the space between, which will later be filled with concrete to sink it, is reinforced with structural steel. The caisson is of all-riveted construction, thoroughly caulked.

Ultimate over-all height, from cutting edge to top, will be 100 feet. Workmen already have begun adding eight feet of additional plate to the sidewall height; when this is completed, about Aug. 1, the work of sinking the caisson to a depth of 100 feet will begin, its first resting place being on the bottom in about 30 feet of water. As the caisson, sinks deeper with the removal of silt, course after course of plate will be added to the side walls until the caisson finally contains 1300 tons of steel and is securely sealed on rock bottom, 98-feet below mean high water. The circular plates for the lower half of the tunnel (which will pass through the caisson near its lower end) may be seen in the illustration. The bottom of the caisson is shaped much like the false bottom of a wine bottle.

The Hudson Midtown tunnel, is a project of the Port of New York authority, financed by a $37,500,000 public works loan. The Mason & Hanger Co. is the contractor. When completed, several years hence, it will carry vehicular traffic between Manhattan, at the foot of West Thirty-Ninth street, and Weehawken, N. J. It will be the third great bore under the Hudson.

George F. Kelble, who has been associated with the Jarka Corp. for the past 14 years, has resigned and organized the Kelble Operating Corp., general stevedores and contractors. Office of the new company will be located at 95 Broad street, New York.



Stcel caisson for Manhattan lock of midtown Hudson tunnel, launched at the Federal Shipbuilding & Dry Dock Co., Kearny, N. J.

I. M. M. Increases Holdings in United States Lines

According to an official statement by P. A. S. Franklin, president, the International Mercantile Marine Co., on July 5 acquired by purchase all of the Dollar interests in the United States lines and associated companies. With the acquisition of the Dollar interests the International Mercantile Marine Co. now owns the controlling interest in both common and preferred stock of the United States Lines Co. This is one more definite indication of the expressed determination of the International Mercantile Marine Co. to develop under the American flag and devote its energies exclusively to the expansion of the American merchant marine.

The company appreciates the continued relationship and co-operation with the Dollar interests in other directions. Pacific coast shipping interests will continue to be represented in the United States Lines Co. by the Dawson and Dant interests of Portland, Oreg.

The International Marine Co. is determined to continue the development and expansion of the United States lines services both passenger and freight to the point where they will eventually be second to none in the North Atlantic trade and continue to maintain the traditionally high standards of American shipping. The company's plans for new tonnage are maturing and an announcement of progress in that direction is expected in the near future.

It is the earnest desire of the United States lines to place in its various trades tonnage that will equal or surpass that of our foreign competitors and the well known interest of President Roosevelt and other high government officials in the development of the American merchant marine will undoubtedly result in continued co-operation in a program of development and expansion that will insure an adequate fleet under the American flag.

New regulations of the iron and steel code, effective June 21, permit reductions in delivered prices of iron and steel products sold for delivery, wholly or in part, by water in the South Atlantic, Gulf or Pacific coast states, as well as transportation charges on products sold for delivery in the Canal Zone or at Alaskan ports. The establishment of these new differentials is important to water carriers as the tendency should be to route products in this manner whereever possible in order to take advantage of the more favorable prices thus made possible.

Propeller Club to Hold National Convention

The eighth annual convention of the Propeller club of the United States will be held in Savannah, Ga., on Nov. 1 and 2. Under the enthusiastic and energetic leadership of Arthur M. Tode, national president, every effort is being made to make this a real maritime convention.

The major problem to come before the convention is to arouse widespread public opinion to a realization of the importance to the nation of an adequate merchant marine and to obtain for it the whole-hearted support of Americans everywhere.

The purpose of the meeting will be:

To promote, further and support an American merchant marine.

To aid in every way possible worthy and justifiable river, inland waterways, and harbor improvements.

To promote closer co-operation and friendly contact among men engaged in the marine industry.

To present developments in marine engineering and naval architecture and by so doing emphasize the necessity of keeping abreast of scientific developments in order to build up a truly efficient modern American merchant marine.

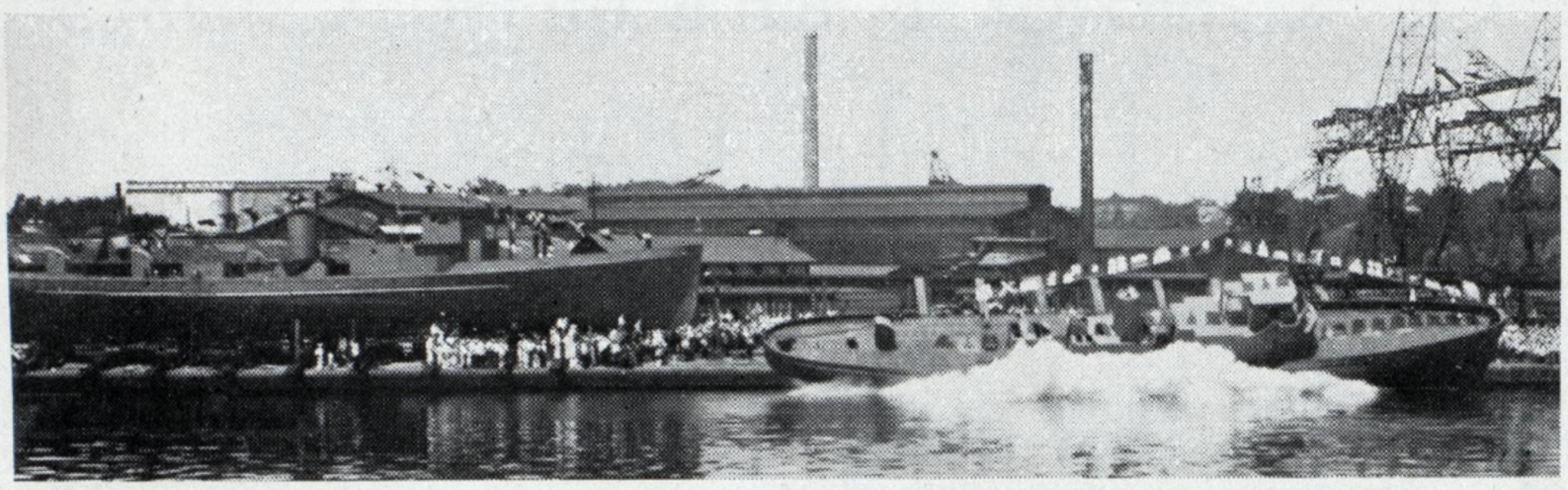
Committees have already been appointed to study and prepare a program for the national convention. Among these committees are one on foreign affairs, and transportation.

New Service Inaugurated by United States Lines

The United States lines, as a part of its expansion program under the American flag, inaugurated on July 21 a new fortnightly passenger and cargo service between New York and the British Isles with the sailing of the AMERICAN SHIPPER. This new service will be maintained by the one-class steamers, AMERICAN SHIPPER and AMERICAN IMPORTER.

Ports of call for passengers will be Cobh and Liverpool, with an additional call at Manchester for freight. The vessels are scheduled to arrive at Cobh on the eighth day and at Liverpool early on the following morning.

Launch Three Patrol Boats at Manitowoc



AT LEFT — Launching the Pandora. First of three Coast Guard vessels all launched within one hour on June 30

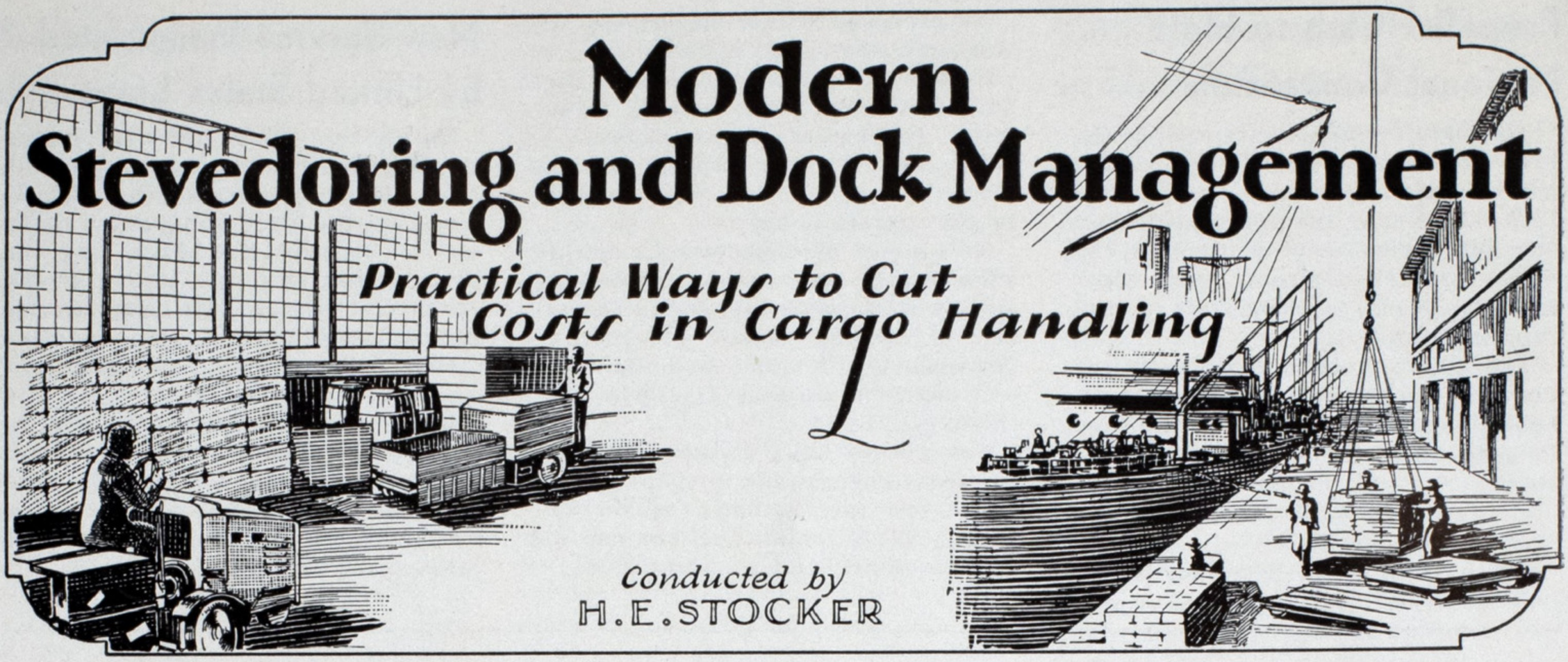
BELOW — The sponsors and the governor of Wisconsin. Left to right—Miss Ann Louise Duffy (Electra); Mrs. Ralph C. Risch (Dione); Governor Schmedeman; and Miss Margaret Hughes (Pandora)

AN UNUSUAL event took place at the Manitowoc Shipbuilding Corp., Manitowoc, Wis., on June 30, when the three coast guard patrol boats, PANDORA, ELECTRA and DIONE, were launched within one hour. The first launching took place at 11 a.m., the second at 11:30 a.m., and the third at 12, noon. The vessels were launched broadside in the customary Great Lakes manner.

These vessels are 165 feet in length overall, and have a molded beam of 25 feet, 3 inches; maximum draft, 8 feet, 6 inches; speed, about 16 knots twin screws, direct connected to Winton diesel engines of 650 horsepower each. Vessels to be completed about October and to be delivered at the yard. Contract price for all three is $728,400.

These vessels are being constructed under the supervision of Commander W. M. Troll. Some 10,000 to 12,000 people witnessed the launching.

Coast Guard patrol boats Dione, Electra and Pandora just prior to launching at Manitowoc, Wis.



Importance of Cargo Handling Costs in Making Freight Rates

By H. E. Stocker

CARGO handling costs are an especially important element in rate making when rates are based upon the out-of-pocket cost or differential cost principle of rate making. The essence of this principle is that if some cargo can be obtained only at a rate which is less than the total cost per ton, it is profitable to accept this cargo, provided there is a margin above the out-of-pocket costs incurred by the acceptance of the cargo.

Low Rate Shows Profit

For example, a traffic executive was criticized for accepting 3000 tons of steel at the conference rate of $6 a ton. The genesal manager claimed that because this steel was accepted, the ship lost a large sum on the voyage. His position was based on a claimed cost of carrying cargo of over $7 a ton. After much argument trying to demonstrate to the general manager that since the ship necessarily had to make the voyage, 3000 tons of steel at $6 netted whatever profit there was above the out-of-pocket cost of handling. The traffic executive contended that this profit amounted to $2 a ton and therefore a profit of $6000 was earned on the voyage by the steel. He contended further that if the voyage showed a loss, it must be due to excessive operating costs, not to the acceptance of the 3000-ton lot of steel. The $6 rate was not a cut rate, so the rate structure in the trade was not disturbed by the acceptance of the cargo.

In such cases the executive needs to know not merely one cost, but two: the cost that he will incur if he takes the additional business, and also the cost that he will incur if he does not take the additional business. He needs to know *everything* bearing on the question which will aid him in determining the amount of the rate necessary to make the company richer by accepting the business.

If the voyage costs, overhead and capital charges total $10,000 and 2000 tons is the cargo, the cost is $5 a ton. If 500 tons additional is taken at a profit of $1 a ton, the result is a profit of $500, or, since the overhead is still $10,000, and the tonnage has been increased to 2500 the cost per ton is only $4, a 25 per cent reduction. Either way the ship is better off by $500. In either event there is a comparatively sharp increase in profit (or decrease in cost) directly due to the carrying of the additional business.

Applying The Principle

Several years ago the out-of-pocket cost principle was applied with profit in the acceptance of shingles from North Pacific coast ports to New York. The shingles were brought from the northern ports to San Francisco by auxiliary schooners and then trans-shipped to intercoastal freighters. The through rate of $16 a ton was divided equally between the coastwise and the intercoastal lines. Although the intercoastal line obtained a rate 50 per cent less than the established intercoastal rate on shingles, it did not disturb the rate structure and it was able to earn a small profit above the out of pocket cost of carrying this added business.

The rate was low but the shingles were carried under deck only when space was available and in addition, deck space was used to produce additional revenue.

How to Determine Cost

The principle under consideration involves observing differences in cost which correspond to differences in the volume or character of the cargo, hence the name, "differential cost principle." The analysis to determine costs cover the total costs of the business as a whole or one commodity. For this purpose one example is not sufficient. To make the result accurate, a number of cases must be obtained.

In determining out-of-pocket costs it is not necessary that these costs be ascertained with great accuracy. The accuracy of the information should be in accord with the purpose for which the figures are to be used. A difference of 5 per cent in the cost of handling canned goods amounts to only 4¼ cents a ton, which is not large enough to decide the acceptance or rejection of the business.

When a contracting stevedore is

used, ascertaining the stevedoring cost is simple as there is a general rate for all cargo, or a general rate supplemented by a few or many special cargo rates. In cases where it is advisable to get a special rate from the stevedore to make the business profitable even on a differential cost basis, the stevedore should figure his costs on the same basis as the shipping company. That is, he should charge against the particular tonnage under consideration, only his out-of-pocket or differential costs, plus a small margin. These consist of labor and insurance, with possibly a small allowance for gear.

When a company is doing its own work, costs of handling a specific commodity are determined by ascertaining the gang cost per hour and dividing that by the estimated tons per hatch per hour. For example, if 40 tons of paper per hour is handled at a gang cost of $20, the cost is 50 cents per ton. Adding insurance and overhead of 25 per cent, gives a total cost of 62½ cents a ton.

The tons per hatch per hour-figure is necessarily a guess but a guess made by an experienced stevedore, familiar with the particular conditions on his terminals.

When the shipments begin to move, a check on the time used to handle a lot, number of men in the gang, checkers, also laborers, if any, will give the actual cost per ton. Obtaining an average cost covering small shipments gives a basis for figuring which is sufficiently accurate for practical purposes.

Average Cost Not Applicable

Using average costs of handling all cargo in matters of this character is completely misleading because the average includes both freight that is costly to handle and freight that is inexpensive to handle and therefore cannot indicate the cost of handling a particular commodity.

Analysis of the handling of the cargo as described will show the actual effects of increased differential business as contrasted to conclusions based upon conjectures, or even conclusions based upon estimates of experts. Conclusions of experts are worthwhile only when facts are lacking.

The analytical method has the advantage of catching that which expert judgment might overlook, and prevents possible fallacies which occur with the best of experts. It is necessary to have a margin to allow for the necessary inaccuracies in calculating the costs per ton.

If the additional business covers all the costs which are incurred by accepting it, then the company cannot possibly be poorer for taking the business. If this business pays anything above the added costs, then the company is richer by that amount, whether it be one cent a ton or two dollars a ton.

Experience indicates that a margin of one dollar a ton is a safe margin to use. This will take care of any unexpected costs such as more than ordinary overtime due to bad weather or other conditions. Working on this margin, on the average, a profit will be made over the cost of handling business. Exceptions may be made to the one dollar a ton margin, when, in the judgment of the executive, the specific conditions surrounding the movement of a lot of cargo justifies the belief that no unusual increase in handling costs is probable.

How Profit Was Increased

It is this marginal profit that is the difference between a small or no profit, and a large profit in some companies. In one case, by application of the principle described in this article, the tonnage was increased from 1500 tons a sailing to 6000 tons a sailing. This added cargo made a big improvement in the profit position of the line because the ships had to keep the schedule whether the cargo was accepted or not, but the nucleus cargo was not sufficient for profitable operation of the line.

The only objection, that has any merit, urged against acceptance of this differential cost business, is that if all or much of the company's business was accepted on this basis, the company would go bankrupt. However, this is true only when the principle is abused. Carried to this extent it is not really the application of the principle but only an example of bad management and an attempt by the management to justify its acts by invoking the principle. The essential point to keep in mind at all times is that the out-of-pocket cost principle applies only with respect to added business which can be moved only by a rate paying something above out-of-pocket costs, but paying less than total per ton cost of operating the ship. Furthermore every traffic decision should be treated as a possible precedent and a wise executive will avoid setting precedents which may result in unprofitable business by reason of coming to apply to a very large proportion of total cargo carried.

In most cases application of this principle in the form of cut rates is objectionable and ultimately a losing proposition. When a cut rate policy is followed great care and skilful judgment are necessary to avoid pulling revenues down to a point where the company is in serious financial difficulties.

The above objection has no merit when it is simply a matter of equalizing rates established by competition, because in such a case the company gains nothing by refusing to accept the business and it makes a few dollars if it does accept it.

Individual rates cannot be fixed by determination of total costs because rates must be based upon typical or average conditions and not reflect the variations in total cost as influenced by volume, character of cargo, weather conditions, strikes and accidents. A rate basis must in a general way be based upon all costs but in the acceptance or rejection of a particular lot of business it is necessary to consider only the costs incurred by the handling of that particular lot.

When cargo tonnage saturation point is reached, to prevent undue increase in costs, the first step is to endeavor to increase the capacity of present facilities. A modernization of cargo handling facilities on terminals and ships may frequently increase capacity of the line. First, an attempt should be made to improve methods without any expenditures for gear and other equipment. A stevedore increased tons handled per hour 30 per cent by improvement in method of landing slingloads on the pier and by training the men in the new method. For example, if sideports are cut in the ships, increasing the cargo openings from five to nine, it will be possible to load and discharge in less time, permitting the ship to make more voyages a year, or permitting calls at other berths in the same port or at other ports for cargo which stows closer or pays a higher rate than the cargo being carried.

Sideports can be cut in a ship's tweendeck for approximately $1250 per port. If two ports are cut in each side between the hatches, the total cost would be $5000. This investment could be paid for from savings in cargo handling costs in about one year. However, in some cases sideports need be cut only on one side of the ship and in one case one port forward between the hatches proved adequate.

Is the Investment Justified?

If a large investment is required to take care of the additional cargo obtained under the out-of-pocket principle, the problem becomes complex and great care must be taken to make certain that the added investment is justified from the point of view of prospective profits. When the investment is made costs of the additional business are increased above stevedoring, checking, etc.; to them must be added the capital charges on the investment. It is wise to distinguish carefully between cost of additional equipment which can be paid for within a few months

(*Continued on Page* 40)

Practical Use of New Ideas Will Reduce Costs

By H. E. Stocker*

THE scientific method applied to business is better known as modern industrial management, not scientific management. The advocates of scientific management are often slurringly referred to as "efficiency experts" and frequently this criticism is entirely justified because they miss the main point. The scientific method applied to business is simply a well proven tool for the finding of facts and not a doctrine nor a panacea.

It has been demonstrated in ship operations that the scientific method produces savings and profits over and above good but ordinary management methods.

In one case the long time ships were in port caused an executive to investigate the schedule because he knew that the first principle of economical transportation is that time at terminals should be reduced to the minimum. A thorough analytical investigation confirmed his belief that the number of ships needed to maintain the schedule could be reduced by reducing time in part and a 25 per cent saving in operating costs resulted.

Understanding of transportation principles and the scientific method of analysis were responsible for this result.

The Black Diamond line increased the speed of its ships 40 per cent and at the same time obtained a lower fuel consumption by scientific analysis and experimentation guided by the progressive point of view which is the essence of all science. Duplicating these performances in other steamship lines and backing up such operating achievements with similarly effective management of cargo handling and traffic will put many a line in a thoroughly sound business condition and assist our foreign trade.

Reception to New Ideas

The scientific point of view requires that one be always on the alert for new ideas to cut costs and improve revenues. This may be illustrated by the use of skid platforms for shipping firebrick. Formerly the brick was shipped loose, much of it was broken and chipped in transit. A great deal of waste resulted from the lack of proper packing by the repeated rehandlings. Skid platforms were in use in manufacturing plants for handling and shipping a large variety of materials and had proved an effective means of reducing handling costs and breakage.

It therefore seemed logical, to solve the problem, for the steamship company to provide skids at the port and unload the brick from the car to the skids. The bricks on the skids were held in place by steel strapping and then handled through to consignee in units of 5000 pounds instead of 9 pounds, the weight of one brick.

The results were a 40 per cent reduction in stevedoring costs, almost complete elimination of chipping and breakage and an increase of 400 per cent in the amount of brick moved by the steamship company because of better handling than by competitors.

That is an excellent example of ideal transportation service. A constructive idea adopted from another industry and put to use for the benefit of the shipper, consignee and the transportation company.

The speed with which new ideas are accepted is itself very important. In packing and refrigeration revolutionary developments are occuring and undoubtedly will continue to occur because of the active research work which is being done to find better ways to pack commodities and better ways to transport perishables. Those will profit the most who are the quickest to learn about and adopt these new developments.

Development of packing which is adequate and yet economical in transportation charges is an important factor in increasing the marketing of merchandise. The transportation charges on the package itself should be kept to as low as possible consistant with its proper function. Take the case of a shipment of candy. The shipper formerly used 200 pounds of boxes to ship a 1000 pound order. Since the freight rate was 44 cents per 100 pounds, he paid 20 per cent of the total freight charges for transporting the packing. Using small steel containers supplied by the railroad without extra charge, he was able to reduce his boxing costs and save almost 20 per cent in freight charges because the container gave adequate protection against damage.

The ideal in packing is the complete elimination of packing. Paradoxical as that sounds that is exactly what has been achieved in shipping automobiles. They are handled and stowed for export, intercoastal and coastwise shipment on their own wheels without packing. Even when shipments move in railroad cars to the port, the dunnage problem is taken care of by the new railroad cars fitted with special loaders.

The best way of lowering transportation costs is to develop and apply methods which cut the transportation companies costs and permits them in turn to share this saving by reducing their charges not only without loss but with additional profit.

Progress of Transportation

The extension of foreign markets does not alone concern packing, refrigeration, rates, tariffs, financing, insurance and a merchant marine. It also concerns the progress of our whole national transportation system for a great portion of our foreign trade moves to and from interior points. In the past transportation has been managed and legislated upon in a very disjointed manner. We are now considering transportation in a national and international sense, including all forms of transportation and considering the relation of the various parts to the whole and to the ultimate objective of obtaining the most effective transportation system for our economic life. Never before has transportation been so considered and never before has there been as great interest and as great an understanding of the need for a well balanced up to date transportation system.

Transportation has progressed in every particular but the rate of progress has been very uneven in the various divisions of transportation Alert men and women interested in foreign trade and alert transportation men will gain greatly by the acceleration of the transportation revolution in all divisions of transportation.

Replacing obsolete methods and equipment with the new developments in technical and managerial phases of transportation will be of inestimable value to our foreign trade.

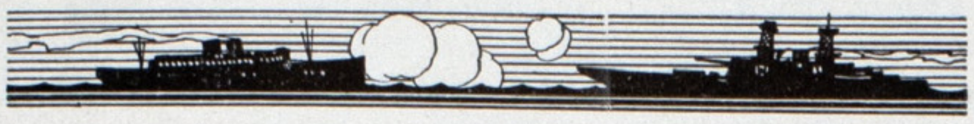
Abstract of address by H. E. Stocker before the Foreign Trade Club of New York University, New York City, on May 2, 1934.

With the sailing from New York of the S. S. CARRILLO on July 17, the United Fruit Co. began a series of 12-day cruises to the tropics. These cruises are limited to 40 passengers, thus insuring each passenger personal attention on the trip.

The S. S. CARRILLO will be joined in these cruises by her sistership, the S. S. TIVIVES. Both 12-day and 20-day cruises are available to passengers.

In the item on the appointment of Capt. Alf Adler as commander of the S. S. SANTA ROSA of the Grace line, which appeared in the July issue of MARINE REVIEW, his age was erroneously given as 31. It should be 36.

Useful Hints on Cargo Handling



THE important thing is to distinguish clear-mindedly between that which is of a high degree of accuracy, near-facts and sheer estimates and guesswork; in other words, to discriminate between kinds and character of fact and degrees of accuracy. Untrained minds often have prejudices against facts and figures for the sole reason that they have used them unintelligently and with indiscriminate faith. Natural laziness of mind tends to make people accept facts and figures, especially when they look imposing and accurate, regarding them as infallible and exact. Human nature is constantly seeking a rule-of-thumb in place of original thinking, and often looks for statistics to back up preconceived ideas. The above is reprinted from an article by J. George Frederick in *Business Research and Statistics.*

Discharging Newsprint

THE newsprint paper is stowed on end in the ship. The rolls are handled from the hold by being placed on two-wheel hand-trucks having rubber pads over the parts on which the rolls rest, so that the paper will not be damaged. The loaded trucks are run onto the hatch elevators which raise the loaded trucks to the 'tweendeck. From the 'tweendeck the rolls are trucked through the sideport to the pier. A short distance from the gangplank, which connects the sideport with the pier, the rolls are unloaded from the hand trucks to four-wheel caster-type trailers for the comparatively long haul down to the delivery platform at the head of the dock.

The transfer of the rolls from hand trucks to trailers is made with the aid of a platform 2 foot x 3 feet square by 12 inches high. The platform is level with the frame of the hand truck and approximately level with the floor of the trailer. On one side the platform is cut away so that the trailer can be pushed close against the platform, the recess taking care of the coupler. An extension of the bottom of the platform serves to hold the trailer in place when the rolls of paper are rolled from the hand truck across the platform onto the trailer.

The platform is covered with protecting strips of rubber and canvas to prevent damage to the paper.

The 3 feet by 6 feet trailers used will carry two 1800-pound rolls of paper. Two loaded trailers are hauled to the delivering platform. Since the platform is higher than the floor of the trailer, a ramp is provided for unloading the paper. A device similar to that used in loading the trailers is used to hold the trailer in position.

The floor of a platform is kept in good condition ,to prevent damage to the paper. It is necessary to redrive the spikes into the floor planks because they work loose by the constant pounding of the heavy rolls of paper. At this platform, the rolls of paper are loaded onto the consignee's truck.

THIS page is being devoted to short items on all matters having to do with the more efficient turn-around of ships. These items are intended to be of a helpful nature.

We will welcome for this page brief descriptions, illustrated if possible, of any better or safer way of performing any function in cargo handling. Also, any questions submitted will be answered by the editor.

Safe Method of Handling

THE ANNA MAERSK protects men and cargo from hatch strongbacks which may be unshipped by a slingload of cargo by a simple device which is bolted to the strongback and engages the top of the hatch coamings and the underside of the bulb-angle with a clamp.

Another line accomplishes the same purpose by providing a ⅜-inch chain, to which is fitted a steel clamp which engages the underside of the hatch coaming. The clamp is held securely in position by means of a set of screws made hand tight. The chain is then passed through the lightening hole in the strongback and loosely tied. This arrangement holds the strongback secure even when struck hard by a slingload of cargo.

Duties of Resident Manager

THE duties of a resident manager of a steamship line may be summarized as follows:

1. To supervise and inspect loading, discharging and handling of in and outgoing cargoes.
2. To make personal investigation of claims, trace their origin and cause, and establish responsibility.
3. Investigate all charges made for service such as, stevedoring, dockage, towboats, etc., and supervise repairs to vessels and the purchasing of supplies.
4. Keep home office informed of all legislation, new rules, and changes of rules that can in any way affect the company's policies, costs and revenue.
5. Keep home office informed of all new technical development in design of hull and engines and methods of handling and care of cargoes.
6. Work for close harmony and friendly relations between agencies and the home office.
7. Develop traffic through elimination of claims and improved handling of freight, and by establishing personal contact with shippers and assisting them in solving their problems.

Advice to Longshoremen

MILLIONS of dollars and many human lives are destroyed each year by fire. Each fire starts from a very small source. Do not smoke on the dock or the ship. A carelessly thrown match or lighted cigarette may cost not only your job but also your life.

Dull hooks are worse than no hook at all. Give the kids a file and let them put a point on your hook. They will enjoy doing it and it may save someone from a serious accident. Sharpen hook with a smooth-cut file. Never grind with emery wheel, as this draws temper out of metal. File toward point of hook. File only inside of hook.

Piling cargo or making up drafts carefully, takes no more time than doing it carelessly. If not done properly, the pile may fall or the draft may collapse, resulting in some one being hurt. Always remember if the pile fell or the draft collapsed when you could have prevented it, you are morally responsible for the injury or death of the man hurt or killed.

Some lines have found spruce lumber very good for hatch covers. In some cases the ends are strengthened by a steel band 4 inches wide which encircles each end. Certain American lines prefer single hatch boards to double hatch boards claiming that the latter do not last as long and that they are too heavy for the men to handle.

Up and Down the Great Lakes

Big Gain in Traffic—Lake Levels—Ore Shipments—
Canadian Grain—Coal—Fewer Vessels in Operation

TRAFFIC through the Sault Ste. Marie canals, Canadian and United States, during June increased to 7,901,370 tons, more than twice the June, 1933, tonnage, more than four times the June, 1932, tonnage, and 19 per cent above the traffic for June, 1931, according to the Canadian bureau of statistics. Iron ore was particularly heavy accounting for 4,518,847 tons as compared with 1,281,023 tons in June, 1933. Bituminous coal increased from 1,013,942 tons to 2,002,273 tons and wheat from 23,437,265 bushels to 28,154,413 bushels.

Total traffic through the Welland ship canal during June amounted to 1,235,655 tons as against 1,238,753 tons in that month in 1933. The large decreases were 222,848 tons of wheat and 22,132 tons of flour. Iron ore was heavier by 71,174 tons, bituminous coal by 32,229 tons, coke by 15,527 tons, corn by 16,759 tons, and pulpwood by 30,992 tons.

Light wheat shipments was the chief factor in reducing the freight traffic on the St. Lawrence canals from 994,429 tons in June last year to 901,255 tons in June of this year. Pulpwood increased 73,314 tons or 220 per cent. Rye imported from Poland, passing up the canal, amounted to 43,709 tons as against upbound shipments of 10,698 tons last year. Gasoline also increased from 42,722 tons in 1933 to 60,-550 tons, all but 299 tons being upbound. Anthracite coal increased by 17,484 tons and bituminous coal by 21,145 tons, or from 113,805 to 134,950 tons, 56,479 tons going up and 78,471 tons going down.

Canadian Grain Shipments

Shipments of grain from Fort William and Port Arthur, Ont., during the week from July 8 to July 14 were as follows :Wheat to Canadian lower lake ports, 2,433,685 bushels; to Montreal, 395,000 bushels; to Sorel, 112,000 bushels; and to Buffalo, 914,-591 bushels. This makes a total shipment during that week of 3,755,-277 bushels of wheat. During the same week there was a movement of 330,652 bushels of oats all to Canadian lower lake ports.

The total movement of wheat from these two Canadian Lake Superior ports for the first week in July was 2,483,537 bushels of which 280,910 bushels went to Buffalo while the remainder went to Canadian lower lake ports, Montreal and Quebec.

For the week from June 22 to June 30, the total shipment of wheat from these ports amounted to 6,166,-296 bushels. Of this amount 1,068,-214 bushels went to Buffalo and 75,-000 bushels to other American ports.

June Lake Levels

The United States Lake survey reports the following monthly mean stages of the Great Lakes for the month of June, 1934, determined from daily readings of staff gages.

Lakes	Feet above mean sea level
Superior	602.73
Michigan-Huron	577.97
St. Clair	573.54
Erie	570.39
Ontario	244.36

Lake Superior was 0.24 foot higher than in May it was 0.04 foot above the June stage of a year ago.

Lakes Michigan-Huron were 0.11 foot higher than in May and they were 0.74 foot below the June stage of a year ago, 1.59 feet below the average stage of June of the last ten years, 4.25 feet below the high stage of June, 1929, and 0.43 foot below the low stage of June, 1926. Based on past records the monthly mean level for July is likely to be about 578.1 and not less than 577.8.

Lake Erie is 0.04 foot higher than in May and it was 1.65 feet below the June stage of a year ago, 1.89 feet below the average stage of June of the last ten years, 3.88 feet below the high stage of June, 1929, and 0.79 foot below the low stage of June, 1925.

Lake Ontario was 0.12 foot lower than in May and it was 1.09 feet below the June stage of a year ago, 1.96 feet below the average stage of June of the last ten years, 4.26 feet below the high stage of June, 1908,

Ore Shipments Heavy

Ore shipments from upper lake ports during the month of June showed an increase to nearly four times the amount in June, 1933. No less than 4,460,807 tons of ore were shipped from upper lake ports during June of this year as compared with 1,280,669 tons in the month of June, 1933. The total shipment of ore for the season up to July 1, 1934, was 7,091,385 as compared with 2,-264,413 tons of ore for the season of 1933 up to July 1.

Increase in ore shipments during June of this year over the same month last year amounted to 3,180,-138 tons or 248.3 per cent. The increase in ore shipments for the season up to July 1 this year over the same period in 1933 amounted to 4,826,972 tons or 213.2 per cent.

Shipments of ore by rail from Lake Erie ports to furnaces during the month of June amounted to 2,-426,860 tons, making a total for the season up to July 1 of 4,107,531 tons. On July 1, 1934, the balance of ore on dock at Lake Erie ports was 4,342,996 tons as compared with 4,788,748 tons on July 1, 1933.

Attention Mariners

Mariners are particularly requested to immediately notify the nearest superintendent of lighthouses, direct, of any defects or misplacement observed in an aid to navigation. Messages may be sent by radio or telegraph, collect, to the superintendent of lighthouses at Buffalo, Detroit, Sault Ste. Marie and Milwaukee.

Such co-operation will materially assist in the prompt remedy of defects, and in the effective maintenance by the lighthouse service of its aid to navigation on the Great Lakes and connecting waters.

House Flags and Stacks

William A. Faber, Cleveland, has prepared, in their true colors, copies of the house flags and stack insignia of vessels of the Great Lakes, both American and Canadian. Some 40 or more of these, printed in colors, have been used with an accompanying article headed "Heraldry of the Lakes" in the *Detroit News* for July 15.

A special article by Mr. Faber with illustrations of a large number of house flags and stack markings of Great Lakes vessels is to appear in the *Cleveland Plain Dealer's* Sunday edition, July 29.

The illustrations used in both articles are part of a complete set covering 80 steamship companies of the Great Lakes.

Number of Lake Vessels in Service is Reduced

Has the peak of bulk vessel operation on the Great Lakes been reached and is a decline from now on to be expected, without prospects of an upturn, is now a question of considerable concern to operators. That there has been a substantial decline in operation is clear from the figures for July 15 compared with those for June 15. There are some, however, who are of the opinion that this decline is only temporary and that an improvement may be expected, beginning in September, for the latter part of the season.

From figures compiled by C. C. Lindeman of the M. A. Hanna Co. American lake bulk vessels in commission on July 15 numbered 190 with a total trip capacity of 1,696,000 tons giving a percentage of 57.92 in number and 61.70 per cent in tonnage of the total fleet available. This shows some decline from the standing as of June 15 when 205 vessels or 62.5 per cent of 1,835,000 tons or 66.76 per cent were in commission. It is a considerably better showing, however, than the standing as of July 15, 1933, when 164 vessels or 49.7 per cent of 1,432,900 tons or 51.86 per cent were in commission.

Of the 190 vessels in commission on July 15, 149 were engaged in the ore trade and 41 in other bulk trades. On June 15 of the 205 vessels in commission 154 were engaged in the ore trade. A year ago on July 15 of 164 vessels in commission, 116 were engaged in the ore trade.

There has been some fluctuation in the number of vessels in commission for the various companies. The following companies on that date were still operating 100 per cent of their available tonnage: Inland, Hutchinson & Co., managers; Cleveland Cliffs Iron Co.; M. A. Hanna Co.; Reiss Steamship Co.; Valley Camp Steamship Co.; Midland Steamship Co.; and several smaller companies operating from two to four vessels each.

Of the larger companies, the Pittsburgh Steamship Co. had 43 vessels or 50 per cent of its fleet in operation on July 15. Interlake Steamship Co. had 21 or 42.86 per cent of its fleet in operation. Hutchinson & Co., with a total of 19 vessels, had dropped to 9, or 47.37 per cent, in commission, as compared with 18 or 94.74 per cent on June 15. Bethlehem Transportation Corp. and Great Lakes Steamship Co., maintained the relative standing of 62.5 and 31.58 per cent respectively of their fleets in commission, these being the same figures as for June 15.

Lieut. Col. Dan I. Sultan, corps of engineers, United States army, who has been transferred to Washington, after two and one-half years as United States district engineer at Chicago, was the guest at a farewell dinner July 17 at the Stevens hotel, in the latter city. Colonel Sultan assumed his new duties as member of the board of army engineers for rivers and harbors at Washington on July 24. He has been succeeded in Chicago by Major Donald H. Connolly.

Capt. Alvin A. Morrison, whose career and appointment as supervising inspector of the United States steamboat inspection service for the ninth district were referred to at length in the July issue of MARINE REVIEW, took the oath of office on June 30, 1934, before Federal Judge Jones in the Federal building, Cleveland.

The Propeller club, Port of Cleveland held the first of the three golf tournaments, scheduled during the summer, at the Westwood Country club, Lakewood, O., on June 28. A dinner followed at 7 o'clock. There was a large attendance.

Coal Shipments Continue to Show Big Increase

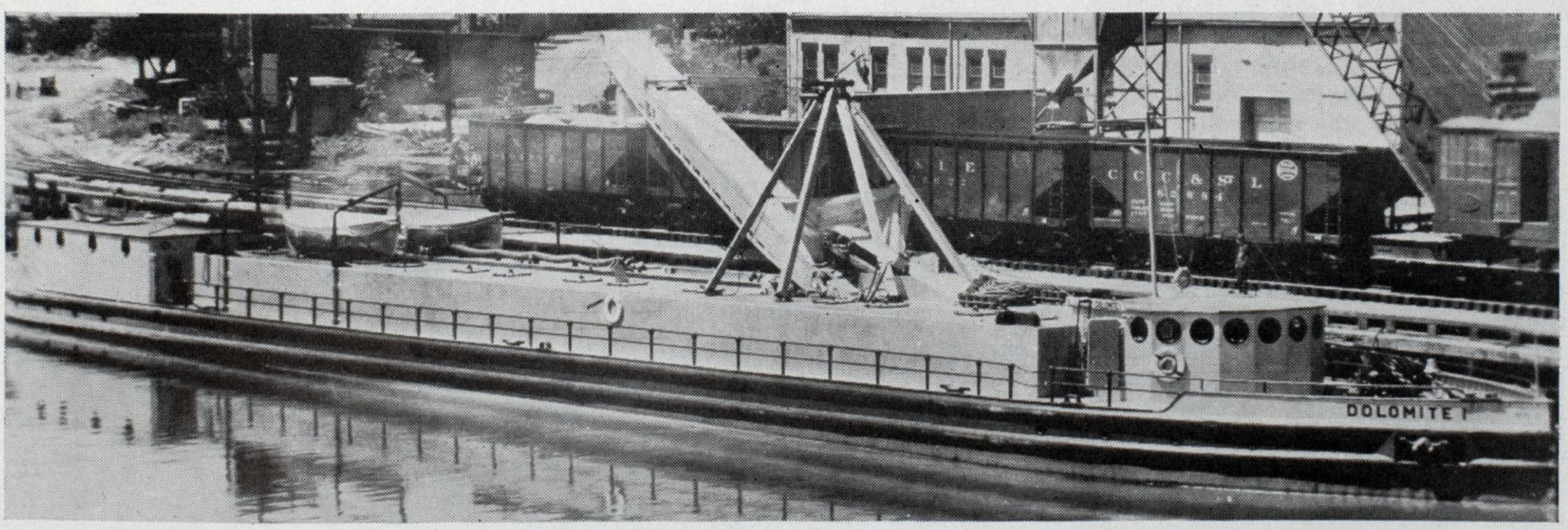
Bituminous coal shipments from Lake Erie ports during the present season up to 7 a.m. July 16, amounted to 14,445,288 net tons of cargo and 447,627 net tons of bunkers, or a total of 14,892,915 net tons. This is a marked increase over the same period last year and nearly double the movement in the same period in 1932. It is also over three and a quarter million tons more than the movement in the same period of 1931.

Comparing the movement of bituminous coal this year with previous years we find that the cargo coal moved in 1933 in the same period amounted to 10,848,869 tons and bunker coal 290,448 tons making a total of 11,139,317 net tons. For the same period in 1932 cargo, bunkers and total bituminous coal shipments were respectively; 7,320,118 tons, 179,312 tons, and 7,499,430 net tons. For the same period in the year 1931 the figures for bituminous coal shipments in cargo, bunker and total were respectively; 11,153,342 tons, 361,151 tons, and 11,514,493 net tons.

The average shipments of bituminous coal each week for the four weeks ending 7 a.m. July 16 amounted to 1,215,475 net tons of cargo and 40,604 tons of bunkers.

Anthracite coal shipments on the lakes for the season up to July 1 amounted to 303,103 long tons. For the same period in 1933 the amount was 97,760 long tons.

The department of marine, Ottawa, Canada, through E. Hawken, assistant deputy minister, on July 11 issued an announcement that until further notice the navigable draft of the St. Lawrence canals has been reduced from 14 feet to 13 feet, 9 inches.



Largest all-welded freighter, Dolomite No. 1, designed and built by the Dolomite Marine Corp., Rochester, N. Y. Length overall 213 feet 10 inches, beam 32 feet. Twin screw diesel electric drive. Photograph taken while discharging sulphur at Cleveland, her thirteenth cargo, June 13. This vessel is a self-unloader and was fully described in MARINE REVIEW for September, 1933, and April, 1934

I. M. M. Employes Retired After Long Service

After a career of almost 60 years in shipping, A. C. Fetterolf, vice president of the International Mercantile Marine Co., and the Roosevelt Steamship Co., retired on June 30. He has always been connected with the transportation of freight.

At the age of 16, he entered the Philadelphia office of Peter Wright & Sons, then agents for the American and Red Star lines, which later became a part of the International Mercantile Marine Co. Later, on being transferred to the New York office, he took charge of American line and Red Star line freight.

In 1902 on the formation of the International Mercantile Marine Co., Mr. Fetterolf became assistant general traffic manager and three years later was made freight traffic manager, a position which he held until 1925, when he became vice president in charge of the freight operations.

During the World war, in addition to his company duties, he served as director of ocean transportation for the American Red Cross. Mr. Fetterolf was born in Collegeville, Pa. He now makes his home in Montclair, N. J., where he is active in the town's civic affairs.

F. W. Ridgway Retires

F. W. Ridgway, another old employe of the International Mercantile Marine Co., also retired on June 30, after 51 years of service. He had seen service both in sail and steam, and began his business career in 1883 in the White Star office in New York when that company was still operating sailing ships. As head of the inward freight department, he handled the papers of many a square-rigger in from India and China.

Mr. Ridgway became assistant manager of the steamship department of the International Mercantile Marine Co. in 1904. In 1910 he was appointed manager of the operating department and held that position until his retirement.

He comes of sea-going forbears. His great grandfather, Joseph Skidmore Ridgway, was a member of the firm of New York merchants that owned the Dramatic line of sailing packets. These vessels, famous in the thirties and forties, all bore names notable in the theater. The first four of these vessels were the GARRICK, SIDDONS, SHAKESPEARE and ROSCIOUS. They were of 1100 tons burden, 170 feet long and ran between New York and Liverpool.

John Watson Retires

John Watson, general superintendent of the International Mercantile Marine Co., also retired on June 30, having reached retirement age after 44 years of service. He joined the Atlantic Transport line in 1890 as general assistant in the operating department at old pier 57. During the Spanish American war he was in charge of old pier 39 where the American line ships were outfitted for war service.

Shortly after the formation of the International Mercantile Marine Co. in 1902, he was made superintendent of White Star piers. In 1910 he was placed in charge of the Chelsea piers, and held this post until he retired.

Mr. Watson was succeeded by Capt. William H. Lee, who has been his assistant for several years.

Grace Line Personnel

Brainard J. Fountain, formerly New England passenger agent for the Grace line, has been appointed general agent of the passenger department with headquarters at 10 Hanover Square, New York, according to a report issued by W. B. Wheeler, passenger traffic manager of the Grace line. Mr. Fountain replaces W. O. Cogswell, who for the past three years filled this position, and who now has accepted a position with the Matson line with headquarters in Honolulu.

Kenneth B. Harding was appointed New England passenger agent with headquarters in Boston. Leo J. McKernan will assist him as traveling passenger agent.

Active Summer Season for Hamburg-American

Of the combined fleets of the Hamburg-American line and the North German Lloyd, six steamships, having a total net registered tonnage of almost 200,000 tons, arrived and departed from the companies' piers 84 and 86, Manhattan, in the 59 hours elapsing between the arrival of the BREMEN on June 28 and the departure of the same ship June 30.

The S. S. ALBERT BALLIN of 21,500 tons, arrived on June 29 from Hamburg and the Channel ports with 238 passengers. On the same day, the COLUMBUS, of 32,565 tons, sailed with 1100 passengers. The sisterships, RELIANCE and RESOLUTE, of 19.802 and 19,692 tons, respectively, sailed on June 30 with a combined passenger list of 750; the RELIANCE sailing north on a 41-day cruise to Iceland, the North Cape, Scandinavian countries and Russia, and the RESOLUTE on an 83-day cruise to South America, Africa, Asia and Europe, her first port of call being Trinidad. The BREMEN'S departure from New York at midnight on June 30, with 1600 passengers, brought the total number arriving and departing on these six vessels to 4200.

All four slips of the companies' piers were the scene of orderly confusion during this period, as tremendous quantities of supplies and other necessities were taken aboard.

Hicks Appointed Treasurer of I. M. M. Lines

Raymond W. Hicks, newly named treasurer of the International Mercantile Marine Co., who will assume his duties on Oct. 1, is living proof that, while the United States shipping board has borrowed talent freely from the ranks of the American merchant marine, it occasionally makes a substantial payment in kind on its personnel debt. For Raymond Hicks is a product of the United States shipping board and it is the training he received there which reinforced his fine natural abilities.

Mr. Hicks, a native of Kingston, N. Y., saw his first service with the shipping board in September, 1919, when he became a member of the accounting department's staff, later being assigned to the treasurer's office. His career started in earnest, however, when in 1925 he was appointed assistant treasurer of the Merchant Fleet Corp. and deputy disbursing officer of the United States shipping board, a dual capacity in which he served until Dec. 31, 1931, when he resigned to become assistant treasurer of the United States Lines Co. and affiliates.

During nearly all of 1931, Mr. Hicks was attached to the offices of United States Lines Inc. (the Chapman company) as representative of the United States shipping board in charge of finances and accounting until the line was sold to the International Mercantile Marine Co.-West coast interests and reconstituted as the United States Lines Co., when, as stated, he became assistant treasurer.

Thus, while still a comparatively young man, with only about sixteen years in the shipping business, Mr. Hicks is entitled to all the veteran's stripes there are in connection with the United States Lines, for he has been associated with them in executive capacities since their inception.

Order Tankers Abroad

The Standard Vacuum Transportation Co. is reported to have placed orders for two 15,000-ton tankers with Krupp, at Kiel, Germany, and one similar tanker with a shipyard in Rotterdam, Holland. In this connection it is interesting to note that the bids received from the continental yards were appreciably below those from British shipyards.

The vessels are to be built on the Isherwood bracketless system from plans under preparation by Sir Joseph W. Isherwood & Co. Ltd., London. The propelling power, in single screws, will be single acting diesel engines of Krupp type. The general dimensions of the vessel are: length between perpendiculars, 485 feet; beam, 68 feet; and depth 37 feet.

MODERN TERMINAL

for Serving Mississippi River Traffic

IN 1932, Theodore Brent, traffic counsellor, was called by the city of Greenville, Miss., to make a traffic survey and determine the best suitable type of river terminal and its equipment. Based upon his recommendation the present terminal, shown in the accompanying illustration, was built.

Plans and specifications were prepared by V. M. Friede, naval architect, New Orleans. S. Lecourt, civil engineer, took care of the reinforcing of the levee and installation of deadmen. The terminal was built by the Ingalls Iron Works in its shipyard at Chickasaw, Ala.

Due to the large difference between the high and low river stages, it was found advisable to dispense with warehouses. The terminal therefore consists of a wharf boat, connected to the shore by means of a bridge, and is equipped with a grain elevator.

Of All-Welded Construction

The wharf boat, which was built under American Bureau of Shipping specifications, has the following dimensions: Length between perpendiculars, 230 feet beam molded, 55 feet and depth molded, 9 feet 9 inches. The steel hull is all electric welded and is constructed on the transverse system. Fleetweld rods supplied by The Lincoln Electric Co., Cleveland, were used throughout for the welding.

The hull proper, in addition to the raked ends, is subdivided by means of watertight bulkheads into eight holds. Holds No. 2 and No. 7 are used for water ballast; holds No. 4 and No. 5 for grain storage, and hold No. 6 is used as a pump room. Two longitudinal bulkheads, extending from rake to rake, form the outside skin. In total there are 30 watertight compartments which greatly reduces the insurance premium. Each water ballast tank is subdivided into three compartments by means of longitudinal bulkheads.

Cargo House on Deck

On deck is located the cargo house which has the following dimensions: Length, 196 feet; beam, 48 feet, height, 14 feet. The rise of roof is 8 feet. The house surfaces are made out of Robertson protected metal, painted on the outside with aluminum. Eight sliding doors at 24-foot centers are provided on the port (river) side of the house. In addition, doors are located at the forward and after end. On the starboard side is located a 24-foot opening corresponding to the location of the bridge. The deck in the way of cargo house is covered with Johns-Manville composition flooring. At the after end of the house is located the terminal office. Ample provision is made for ventilation and lighting of the terminal.

The traffic from and to the wharf boat is over a 72-foot long, 12-foot wide pony truss bridge designed to carry a 16-ton movable load. On account of a 50-foot rise and fall of the river, which means that the shore end of the bridge has to move about 300 feet on the inclined levee, this end of the bridge is mounted on a truck. The truck travels on tracks, each of the rails resting on a reinforced concrete beam. In addition, in order to take care of the horizontal as well as possible radial movement of the bridge, the bearing plate of the shore panel in way of the truck has a spherical universal joint and conical rollers. The wharf boat end of the bridge is suspended several inches above the deck from a gallows frame on steel cables passing over the grooved sheaves. This arrangement takes care of the possible trimming of the wharf boat and prevents distortion of the bridge structure. Both ends of the bridge have short ramps leading to the wharf boat deck and levee, respectively.

In order to facilitate the trucking from river barges to the wharf boat deck, the previously mentioned ballast system is provided. By filling and emptying the tanks the decks of the wharf boat and respective barges are kept on the same level.

Grain Handling Equipment

The grain handling equipment was manufactured by the Brady Conveyor Corp., Chicago, and is of pneumatic type. The same installation by means of suitable by-passes and various hose, which are mounted on universal joints, makes it possible to discharge grain from river barges into the grain bins of holds No. 4 and No. 5, or discharge directly into trucks and sacks through weighing scales, or to reclaim the grain from the bins of the wharf boat. The capacity of the grain handling machinery is 1000 bushels per hour. The grain handling equipment is supported on a structural steel foundation independent of the cargo house, thus eliminating the possibility of vibration. Three dust-proof, 75-horsepower, 10 horsepower and 2 horsepower, motors operate the machinery.

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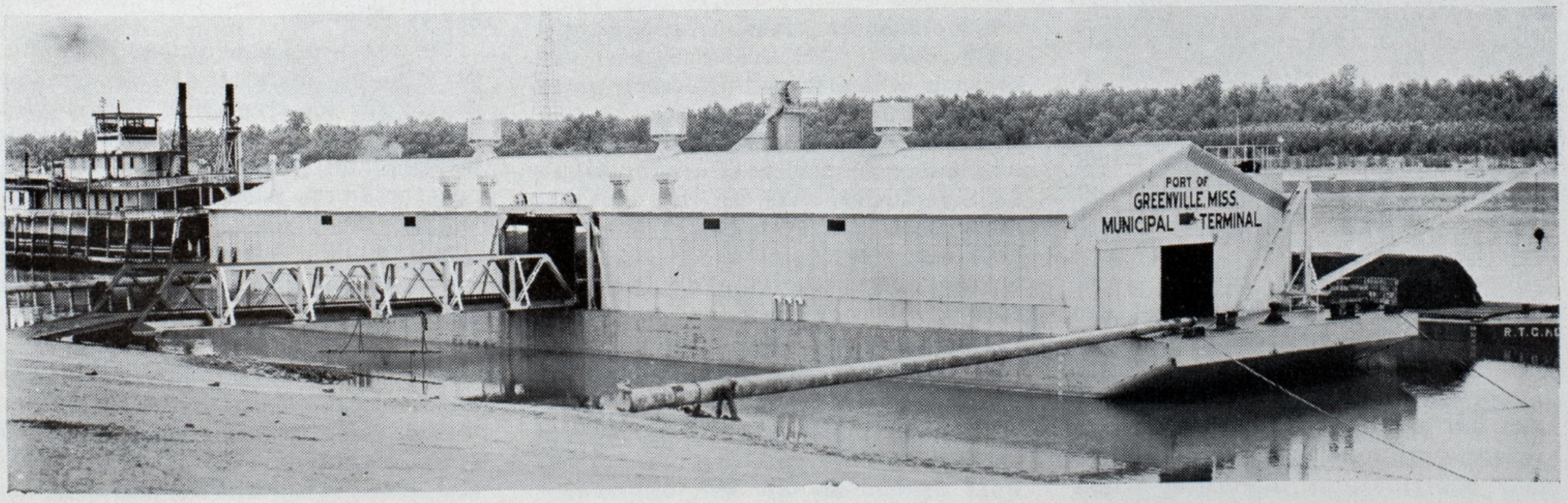

Modern river terminal recently completed for Greenville, Miss. Steel hull of all welded construction

European Shipping

(*Continued from Page* 11)

it is carried in carbon-dioxide it has proved rather an expensive matter and a good deal of leakage appears to be inevitable. Lately several consignments have come across in safety without the help of gas, and although of course it is a much bigger risk there are many in the meat business who consider that it is the system of the future.

Increased Transatlantic Trade

The European shipping companies on the North Atlantic are all rejoicing in an appreciable improvement in bookings, but, like the British shipbuilding employment the improvement is only comparative and up to now it has not been in any way sufficient to justify the companies in altering the yachting program which employ a good many Atlantic liners. These cruises are well booked this year, especially in the cabin and tourist classes and the shorter cruises, but the loss of the North German Llyod liner DRESDEN while cruising in Norway has brought to the surface a question that has been in the minds of underwriters for some time past, whether the yachting business does not introduce an undue risk by sending big liners, designed for and usually employed on a direct service with the minimum of calls, into any number of odd ports and inlets, many of which are not at all accustomed to handling such tonnage. It is a question that is likely to be discussed fully before the new year.

Both Cunarder 534 and the French liner NORMANDIE are making steady progress and, both having taken a firm hold of the public imagination, they are a subject of innumerable rumors of which the great majority are absolutely without foundation. One of these was that the NORMANDIE was to be drastically altered before she went on service, lengthened and given a tonnage that would make her the biggest ship in the world. It would seem to be almost unnecessary for the company to issue a denial of this report. Lengthening a ship of that size is not a matter that can be arranged with a stroke of the pen as some people seem to imagine. While the Yourkovitch hull has not yet been tried, the French line has not the least reason to believe that it will in any way fail in its promise.

The international tanker pool, which now embraces nearly all the free tanker tonnage in Europe, is still in too early a stage to justify any prophecy as to its ultimate results but the hard-hit tanker owners are certainly not too pleased to have their contributions increased, while the definite policy of the pool, to discourage new construction, is raising some doubts in the minds of British tank owners. Taken on the average, the free British tankers are older than the Norwegian, whose owners placed a large number of orders in 1929 and 1930, so that any check in building may lead to the British proportion of tankers on the free market dropping considerably as the existing ships go to the scrappers and the business passing more or less entirely into the hands of the Norwegians.

Condition of Russian Shipbuilding

In Russia it is now quite clear, and admitted in the official press which only publishes what it is told by the Moscow authorities, that the shipping and shipbuilding sections will be the weakest links in the five year plans. At the present time the press is talking about sabotage, with rather sinister hints of disciplinary action, but it publishes facts and figures which are illuminating.

In the shipbuilding line it was the aim of the administration to build up a big fleet consisting entirely of modern motorships built in Russia, the old naval establishments of the czarist regime being used for the purpose. But the ships, although well built, have been a long time under construction and the diesel engines even longer, practically every motorship being held up owing to delayed delivery of the engines. Despite this fact there is talk of the newer ships being diesel electric, which would appear to the outsider to multiply the problems many times. On the shipping side, in which it is the aim of the authorities to have all Russian overseas trade, not the usual 50 per cent, carried by Russian ships, the figures for 1932, which are the last ones available, show that only 27.8 per cent of the plan for that year was fulfilled and from the tone of the newspapers already mentioned it would seem that matters have not improved much since.

Develop New Texas Port

Port Isabel, Texas, is the newest Gulf port. At the present time there is a depth of 14 feet of water across the outside bar with 25 feet inside of the bar for approximately 3¾ miles to the port commission's dock facilities. Within the next few months it is expected that the government will complete the dredging of the outer bar to a depth of 25 feet.

Contract for the erection of a transit shed were let on July 5 and it was expected that these facilities will be completed about Sept. 15. If these plans are carried out on time, Port Isabel should be opened for waterborne commerce by Oct. 1.

Marked Trade Increase at Los Angeles

During the month of June, at Los Angeles, exports amounted to $7,410,000 in value compared with $4,329,678 in June of last year, an increase of 71 per cent. Imports reached a total of $6,263,000 compared with $1,970,905, in June 1933, an increase of 218 per cent.

A portion of these increases were caused by diversion to this port of commerce which would normally move through other Pacific ports, but even aside from such diversion, the increase was substantial. The figures for the month of June are only preliminary and part of the commerce is estimated. The final total may be even higher than the figures given.

For the year ending June 30, 1934, exports aggregated $67,512,000, an increase of more than $15,000,000, or 30 per cent over the previous year. Imports amounted to $38,975,000, an increase of approximately $16,500,000, or 73 per cent over the previous year. The gains in tonnage were not as great proportionately, inasmuch as prices are now higher.

The diversion of traffic to this port owing to strike conditions elsewhere is very noticeable in shipments to Hawaii, which aggregated $1,842,000 in June, compared with $641,000 in June of last year, or nearly three times as much.

Whereas other Pacific ports have practically closed up for the past two months, there were 563 ship arrivals at Los Angeles in June, and the average for the year was 590 ships per month. When it is considered that lumber and coastwise traffic were practically eliminated for 60 days it will be noted that off-shore and intercoastal were practically normal.

Red "D" Offers Cruises

The Red "D" Steamship line, which has been operating vessels between the United States and Venezuela for approximately 100 years, is now, for the first time, entering the inclusive price cruise business.

For several generations the Red "D" line has maintained a regular passenger service from New York to San Juan, Puerto Rico, La Guayra, Puerto Gabello and Maracaibo in Venezuela, and the Dutch island of Curacao with sailings every week. Since May 9 the company has been offering a 13-day cruise with three days at San Juan and a 21-day cruise with stops at four ports.

In addition to the liners CARABOBO and CARACAS, carrying 100 to 150 passengers each, the Red "D" line has three freighters, the FALCON, TACHIRO, and LARA, with limited passenger accommodations.

Government Support Vital To Merchant Marine

A WARNING that any substantial decrease in the amount of government aid to shipping will mean the end of the American lines in foreign trade was issued recently by R. J. Baker, president of the American Steamship Owners' association, New York.

President Roosevelt's action in instituting a sweeping study of ocean mail contracts, announced July 18, has again focussed the attention of the country on the perennial problem of an adequate American merchant marine.

In an executive order signed at Panama, the President instructed Postmaster-General Farley to make a study of all ocean and foreign air mail contracts now in force, with a view toward modification in any direction made necessary by a change in the government's maritime policy. Farley's report is expected to be completed before the end of the year and will undoubtedly figure in whatever action is taken when congress reconvenes. Mr. Baker's statement in full is given below.

The problems of ocean shipping are now being subjected to the scrutiny of no less than three governmental agencies. It would be well, at this time, to review the purposes of the present program and the benefits to shipping.

Jones-White Act Effective

The backbone of our present establishment is the Jones-White act of 1928, the first comprehensive piece of shipping legislation to be enacted in 50 years. Various substitute plans have been offered during the current administration. Every one, without exception, takes cognizance of the keystone of the 1928 legislation—the utter inability of American vessels to withstanding low-cost foreign competition without some form of government support.

It costs from 50 to 100 per cent more to build ships in American yards than it does abroad. It also costs considerably more to operate ships according to the American standard of living. For this reason American vessels—except in isolated cases—have never been able to survive in the highly-competitive, low-wage international market. This is especially true now, when tariffs, the new deal and various other factors have conspired to make our costs of ship operation incomparably the highest in the world.

The merchant marine act attacked this problem in two ways. It provided, first, for a system of mail contracts to maintain trade routes deemed essential to the proper development of foreign commerce. The act also set up a revolving fund of $250,000,000, to be made available to the industry in the form of construction loans. Both provisions have been remarkably successful in promoting the building of ships and the extension of services at a time when the remnant of our war-built fleet might easily have been swept from the seas.

The act was primarily concerned with the development of foreign trade. To that end, a total of 44 mail contracts has been let to American ship lines serving every major market. The American manufacturer and the American farmer today have an outlet to markets in which, only 20 years ago, our products were unknown. In other markets we have gained greatly through the improvement of service. This improvement accrued not only from the entry of American tonnage; it was forced also upon competing foreign lines which all too frequently extended service grossly inferior to that offered from European ports. Today, some 500 American vessels carry our goods from 60 American ports to terminals in 125 foreign lands.

Cost Is Not Excessive

The mail contracts last year cost the government $23,054,223 more than would have been required to carry the mail on a strict poundage basis. They have averaged less than $20,000,000 a year during the five fiscal years they have been in force. No new contracts have been let since the early part of 1933. The sum now being expended is a trifling one compared to other expenditures incidental to the new deal, such as the more than $1,000,000,000 that is being paid as subsidy to agriculture. The cost of the mail contracts is also small when compared to the expenses of government operation, which caused the shipping board to show annual deficits ranging up to $50,000,000 a year. If we are to have a merchant marine—and no one seems to question the necessity therefor—we must start by realizing that the present system has proved to be the most economical yet devised for keeping American vessels at sea.

There has been some talk recently about the apparent disproportion between the amount of the government's aid and the amount of mail carried by contract vessels. It must be reiterated once again, in this connection, that the rate of payment has nothing whatsoever to do with the carriage of mail. Ships are paid according to size and speed, not according to the amount of mail carried. The rate is the same for one letter as it would be for a shipload. Some ships receive as low as $2.50 a mile; others might get up to $12 a mile. Ships are paid for the outward voyage only. The government was interested in getting a fleet of large, high-speed vessels, and the mail contracts were accordingly graduated with that end in view. Any attempt to relate the payments to the volume of mail simply befogs the issue.

Forty-two New Vessels

Construction loan provisions of the merchant marine act have resulted in the launching of 42 new vessels and the reconditioning of 40 others. The new vessels increased the American fleet by 458,000 tons. The total program involved in the neighborhood of $200,000,000, of which the government loaned $116,183,237 on the new vessels and $12,922,057 on those that were reconditioned. Of the amount loaned, approximately $40,000,000 has now been returned to the government in the form of interest and repayments on principal.

The building of these ships gave employment to 25,000 men in the shipyards for a period of four years, and involved an equal number in related industries scattered throughout the country. Ships in foreign trade give employment to nearly 40,000 officers and men. All of these men will be thrown out of work if there is any substantial change in the government's shipping policy.

Practically every ship line in the United States—and foreign lines, too, for that matter—is today operating at a loss. Any drastic reduction in the amount of the government's support would force the majority of American lines in foreign trade right into bankruptcy. Their employes, ashore and afloat, would be out of work, bondholders would find their securities valueless and the government would have on its hands another fleet of ships.

The American people have a prodigious investment in their merchant marine. To turn back now would be to forfeit all that we have done thus far. Other nations are building to the limit of their ability. They know that without ships they cannot compete on an equitable basis with their competitors in world trade. They also know that navies are helpless without auxiliary tonnage. It cost us $3,000,000,000 to get ships during the World war, when they were a condition of national survival. That sum would have been sufficient to support the present modest program for 150 years.

Communications, Marine

(*Continued from Page* 16)

aboard ship. These radiobeacons are installed aboard light vessels or in lighthouses at suitable positions along coast lines, generally where navigation is difficult, and their use has been described under the radiobeacon system in connection with radio direction-finders.

The radio-beacons are in continuous operation during foggy or inclement weather in the vicinity of the radiobeacon and at certain stated periods during clear weather, so that a vessel may receive a reliable check as to a fix when cloudy or overcast weather may have made celestial navigation unreliable. This system also provides the master with advance information as to the weather ahead of the vessel. If the vessel is experiencing clear weather, and the radiobeacons ahead of the vessel are in continuous operation, this clearly indicates that fog or poor visibility can be expected.

As an example of the use of radiobeacons, one master of a large vessel has reported that he navigated his ship in a dense fog from Columbia river lightship (Oregon), up the coast of Washington, and through the Straits of Juan de Fuca, chiefly by use of his radio direction-finder and radiobeacons along the coast. When the fog finally lifted the vessel was abeam of Slip Point, as indicated by radio-direction-finder bearings, thus saving considerable time.

On the other hand, the sinking of the Nantucket lightship in May, 1934, is a disaster which it appears might be laid to over-confidence in the accuracy of radio bearings taken by radio operators on the incoming ship, and which an intimate knowledge of the direction-finder, its possibilities, peculiarities and limitations, on the part of the officer, might have prevented. Definite conclusions in this case may not be drawn, however, until completion of the investigation of the incident, which, at the time of this writing, is still in progress.

Time Signals

It is essential to the navigator that his chronometers be accurate—with a known daily rate. In order to rate chronometers and check their accuracy, radio time signals are transmitted from various stations throughout the world, their accuracy depending upon the precision of the observatory clocks, which control them. In the United States,, these signals are transmitted from certain naval radio stations a number of stated times each day, with an accuracy greater than that needed for navigational purposes. The signals are transmitted simultaneously on low, medium and high frequencies in most cases, thus enabling the navigator to obtain a radio time tick in practically any part of the world.

In these modern days of radio there is no valid reason for unknown erors in chronometers, but the use of these signals does require a certain amount of knowledge on the part of the ship's officers concerning the location of time signal stations, times of transmission, characteristics of signals, and proper choice of frequencies for the locality.

Fathometers

While fathometers employ sound as the transmitted and received impulse, their principles and constructions are very similar to radio equipment, in fact, the circuits which actuate the device are nothing but the usual oscillatory and amplifying circuits employed in radio. The value of the fathometer should be obvious to all seamen, particularly during foggy weather. However, like all other devices on board a ship, the deck officer must have a general knowledge of the fathometer and its peculiarities to use it to advantage.

The received signal, which indicates the depth of the water under the keel of the vessel, is often dependent upon the strength of the transmitted signal, the depth of water, and the type of bottom over which the ship is steaming. The navigator must learn how these factors affect the performance of the fathometer, and to compensate for their variations when necessary, in order to provide a definite and accurate indication of the depth of water under the keel.

Weather and Hydrographic Broadcasts

At regular times each day there are transmitted from many radio stations throughout the world a synopsis of weather conditions for the locality served by the radio station and also for the larger general sea areas. These broadcasts enable a master to draw up a weather map and predict the weather which his vessel may encounter. General forecasts for particular localities are usually included in the weather broadcasts, but these are often insufficient for the purposes of the ship.

In areas infested by hurricanes or typhons, radio stations afford almost constant information regarding such storms, particularly concerning their path and speed of translation. Many ships can thank the radio for timely storm warnings. The weather bureau relies in part upon ships at sea for information upon which to base their weather reports and storm warnings.

Hydrographic broadcasts are also sent by many radio stations. These broadcasts include items important to safe navigation such as the location and drift of derelicts or other dangerous objects, carrying away or displacement of navigational landmarks, or inoperative status of shore navigational facilities. The importance of these warnings to shipping is readily recognized.

Masters and deck officers should know how, when, and from where weather and hydrographic broadcasts can be received for the locality in which they are operating. Provision is also made to broadcast hydrographic or meterological information from ships at sea when the safety of navigation is endangered.

As radio facsimile transmission becomes more general, it will be possible to transmit a complete weather map to ships at sea. This has already been successfully accomplished, and in the future should be of much assistance to masters.

Some Other Radio Aids

There exists a number of other developments in the radio field which may aid the navigator. These include a method of obtaining simultaneous bearing and distance on a beacon. This necessitates both an underwater sound receiver and a radio direction-finder on the ship. Signals from a submarine bell or oscillator and from a radiobeacon are transmitted simultaneously. The radio direction-finder aboard ship obtains a bearing on the fixed radiobeacon, while the time interval between the receipt of the radio signal and the sound signal affords a fairly accurate measure of the distance to the fixed radiobeacon thereby giving the navigator a fix in foggy weather.

A new application of the radio direction-finder is appearing. It is well known that severe storms are accompanied by an excess of atmospherics or static, and it has been discovered that a radio direction-finder can observe and measure within useful limits the center of the atmospheric disturbance. Some years ago, a radio direction-finder was installed aboard a naval vessel to determine the practicability of such use on board ship. The commanding officer of that ship, by observing periodically the intensity of the static and its bearing, was able to plot the path of this circular storm and avoid the hurricane by proper changes of course. It is felt that this development will eventually prove of great benefit to mariners, but its usefulness on board ship will be predicated on some knowledge of radio disturbances and radio direction-finders by the deck officers.

Attempts are now being made to develop a device known as a "fog eye," which, by use of infra-red or other emanations from various objects, suitably amplified by means of radio circuits, will detect the presence of objects in a fog at a considerable distance, at the same time affording a bearing. The further development of this device is awaited with interest.

(*To be Continued*)

Personal Sketches of Marine Men

E. D. Langworthy, Executive Secretary, United States Merchant Marine League

By Ben K. Price

BY TRAINING and experience he is particularly well fitted to arouse public interest in the urgent need of an adequate merchant marine.

A GRADUATE of the Naval Academy, he served the navy 25 years in many varied assignments from Presidential aide to troop transport officer.

THE league will support the upbuilding of an American merchant fleet and will aid in promoting its use by American shippers and travelers.

FROM a printer's devil on his father's paper in a small, inland town, in Minnesota, to the post of executive secretary of the United States Merchant Marine league is a long route for one to travel, but that is precisely the route that Lieut. Com. E. D. Langworthy traveled, and that only partly describes it. For it was a journey marked not only by 25 years of active service in the navy, but by missions in the diplomatic and secret services, duty as White House aide to President Wilson and as aide to President-elect Roosevelt, serving the latter prior to his inauguration as an observer in Europe, and by various other activities, including service as special representative in Europe for the Chicago World's Fair committee.

Commander Langworthy retired from the navy about three years ago, but, as evidenced by his present position, maintains a keen interest in maritime affairs. As a matter of fact, it was while in Europe, active in promoting interest in the Chicago World's Fair, that he conceived the urgent need for some such organization as he now actively directs. He was impressed with the response of European shipping interests and with their alertness to the trade possibilities of the Chicago exhibit. He became particularly interested in the manner in which they were set up to act, and in the circumstances and conditions which surrounded their organizations.

Upon his return to this country he had little difficulty in interesting Brig. Gen. Albert C. Dalton, retired, former president of the Merchant Fleet Corp., who now heads the League; Rear Admiral Bradley A. Fiske, retired, who serves as vice president of the organization, and many others prominent in shipping circles. In short, the aim of the League to "upbuild an adequate merchant marine and to develop American foreign commerce" found ready response.

Born in Spring Valley, Minn., in 1888, Commander Langworthy was graduated from Annapolis in 1910. While at the academy he participated in dramatics and athletics and was stroke on the navy crew. His services after graduation included sea duty for varying periods in foreign and colonial waters. At the coronation of King George of England in 1911, he was flag lieutenant and personal aide to the officer commanding the United States forces in the grand fleet during the occasion. In 1914-15 he was attached to the President's yacht, the U. S. S. MAYFLOWER, serving also as White House aide to President Wilson.

During the World war, Commander Langworthy made 11 round trips to and from Europe on the KROONLAND, twice encountering German submarines. He also served the secret service carrying despatches between the navy department in Washington and the embassy in London. In 1920-21, he was on independent duty in command of the U. S. S. TATTNALL and from 1925 to 1928 he was in command of the U. S. S. GOFF, a destroyer attached to the scouting fleet. It was while in command of this latter ship that he was chosen to meet, some 50 miles off the Virginian capes, the U. S. S. MEMPHIS, which was bringing Colonel Lindbergh home after his successful flight to Paris. Commander Langworthy, with newspaper men aboard, was the first, in fact, to welcome the young aviator home.

Commander Langworthy assisted in drawing up the principles of the Merchant Marine league, which declare that American ships should carry American mails; American sailors should man American ships, American products and American imports should move in American bottoms; American vessels should carry an equitable share of all American foreign commerce; and a modern merchant fleet should be available as a navy auxiliary.

Included in Commander Langworthy's avocations are music and dramatics, and his various clubs include New York Yacht club, Westchester Country club, Military Naval club of New York, the Racquet clubs of Philadelphia and Washington, the Philadelphia Country club, Philadelphia Yacht club, the Army and Navy Country club and the Congressional Country club, both of Washington. He is chairman of the Maytown club of New York. He resides at Scarsdale, N. Y.

The Wolverine

(*Continued from Page* 17)

sented to him at his home in Erie. He was so overcome with emotion at this evidence of the affectionate esteem of his many friends in the navy that his eyes filled with tears and words failed him.

The MICHIGAN'S record of being almost continuously in commission for eighty years is unique. There are other ships which are older, like the CONSTITUTION and the CONSTELLATION, but they have been rebuilt or repaired and, for many years, have only been commissioned for a few months at a time.

As Mr. Bowen says, "her career has been peaceful," which brings to mind the old saying, "Blessed is the nation that has no history." For nearly one hundred and twenty years peace has existed with our great neighbor of the north. On the long border from Lake Superior to the Pacific there is not a single fort. In like manner, the peaceful summer cruises of the MICHIGAN bear testimony to the same fact. The two great peoples, who have the same language, the language of Shakespeare and Milton, of Hampden and Cromwell and Burke, ought to be friends, and for more than a century they have been an example for the world.

Making Freight Rates

(*Continued from Page* 29)

and that which must be paid for over a period of years.

If additional equipment is needed it is conservative to charge this to operating cost and pay for it during the probable period of movement of the cargo. For example, if it is advisable to build special slings for loading and unloading unboxed automobiles during the period of a six months contract, this gear should be written off in that period.

Careful analysis is necessary to prevent loss in the matter of terminal hire.

The most effective results are obtained in the application of the out-of-pocket or differential cost principle of rate making when there is cooperation and mutual understanding between the operating and traffic departments. The best traffic man is the one who knows at least *something* of cargo handling, and the best operating man is the one who understands some of the essentials of traffic management, particularly the more important principles of rate making.

According to an announcement recently received, the strike called by the Mobile local of the International Longshoremen's union, which went into effect June 18, 1934, was settled in a manner satisfactory to both sides on July 9, 1934. Longshoremen continue to be employed on an open-shop basis.

Modern Terminal

(*Continued from Page* 35)

A 3-ton, 35-foot boom, American Hoist Derrick Co. crane is installed outboard of port forward corner of the cargo house in way of the rake of the hull. The operating platform is located on the house roof. The current for all motors and lights is supplied from a shore line running on the levee.

Special provisions are made in order to take care of the slack in the intermediate feeder, due to the wharf boat movement, and also for the difference of height at low and high water stages. The transformers, meters and distribution panels are mounted on a frame located in the wharf boat office.

The wharf boat is moored by means of four steel cables to two reinforced concrete deadmen. Two 90-foot long spar poles serve to breast the wharf boat from the shore. One end of each spar pole rests on a roller located on the deck in the way of each rake and is connected to the deck strap by means of two block tackle. The shore end of each spar pole is lashed to a mooring ring also by means of a tackle. The mooring rings for each spar pole are located 5 feet apart on a reinforced concrete beam on the levee. Thus, in accordance with different river stages, the end of each spar pole can be relashed.

It is the opinion of those who have seen this terminal that, although it is relatively inexpensive, it has proved itself to be the most suitable type for river communities where the difference between the high and low water stages makes the construction of shore warehouses and grain handling facilities difficult and expensive.

Welding Course Opened

The John Huntington Polytechnic institute, Cleveland, in cooperation with The Lincoln Electric Co., is offering a special 5-day course in welding engineering, which began on July 23. This advanced course is being repeated at this time due to increased activity in the welding industry and to demand for an intensive advanced training course. It will be conducted once each month except during August of this year.

The day sessions will be held between 10:30 a.m. and 4:30 p.m. at the plant of The Lincoln Electric Co., at its welding school, under the direction of Arthur Madson and Dean Newton; while the evening sessions between 7:30 and 9:30 will be devoted to lectures and discussions at the institute.

Hemlock, Tender

(*Continued from Page* 14)

supplied by Allan Cunningham, Seattle. Two steam engine driven electric generating sets were made and supplied by the Troy Engine & Machine Co., Troy, Pa.

A complete pumping equipment is installed, including main circulating pump, fire and bilge pump, sanitary pump, main feed pump, main air pump, fresh water pump, auxiliary feed pump, two fuel oil service pumps, and a fuel oil transfer pump. All pumps were supplied by the Worthington Pump & Machinery Corp., Harrison, N. J. The refrigerating machinery was supplied by the Frigidaire Corp., Dayton, O. One main condenser serves both engines.

Heavy Lift Equipment

Equipment for the handling of buoys and the heavy material used in the servicing of lights, consists of a derrick mast and a 50-foot boom, capable of dealing with weights up to 20 tons. A four-drum steam cargo winch, located in the forward hold, provides the power for the boom movements. An 8 x 9-foot steel hatch cover gives access to the forward hold, which is used for the stowage of heavy lines and for the carrying of supplies and building materials.

Among the items of special equipment placed aboard the HEMLOCK is the deep sea anchoring gear. The vessel is equipped with two 1500-pound anchors, and one 1000-pound anchor. Mounted on the forecastle head is a special winch with which is combined a drum for handling steel cable. The drum, carrying 167 fathoms of one-inch cable, provides sufficient scope for anchoring in the deep water.

In addition to the usual navigating equipment to be found aboard lighthouse tenders intended for outside service, a fathometer and also a gyrocompass with repeaters, are fitted.

As much of the landing of supplies and building materials must be done by means of small boats, the HEMLOCK is provided with a 24-foot power boat, two 24-foot cargo boats, both of heavy construction, and a lighter boat.

Tanks for the carrying of fuel oil are located at the forward end of the boiler room and have a capacity of 29,189 gallons. Drinking water tanks and galley fuel tanks are in the forward hold. Boiler feed water is carried in a built-in tank located under the crew's quarters forward. The capacity is 16,540 gallons.

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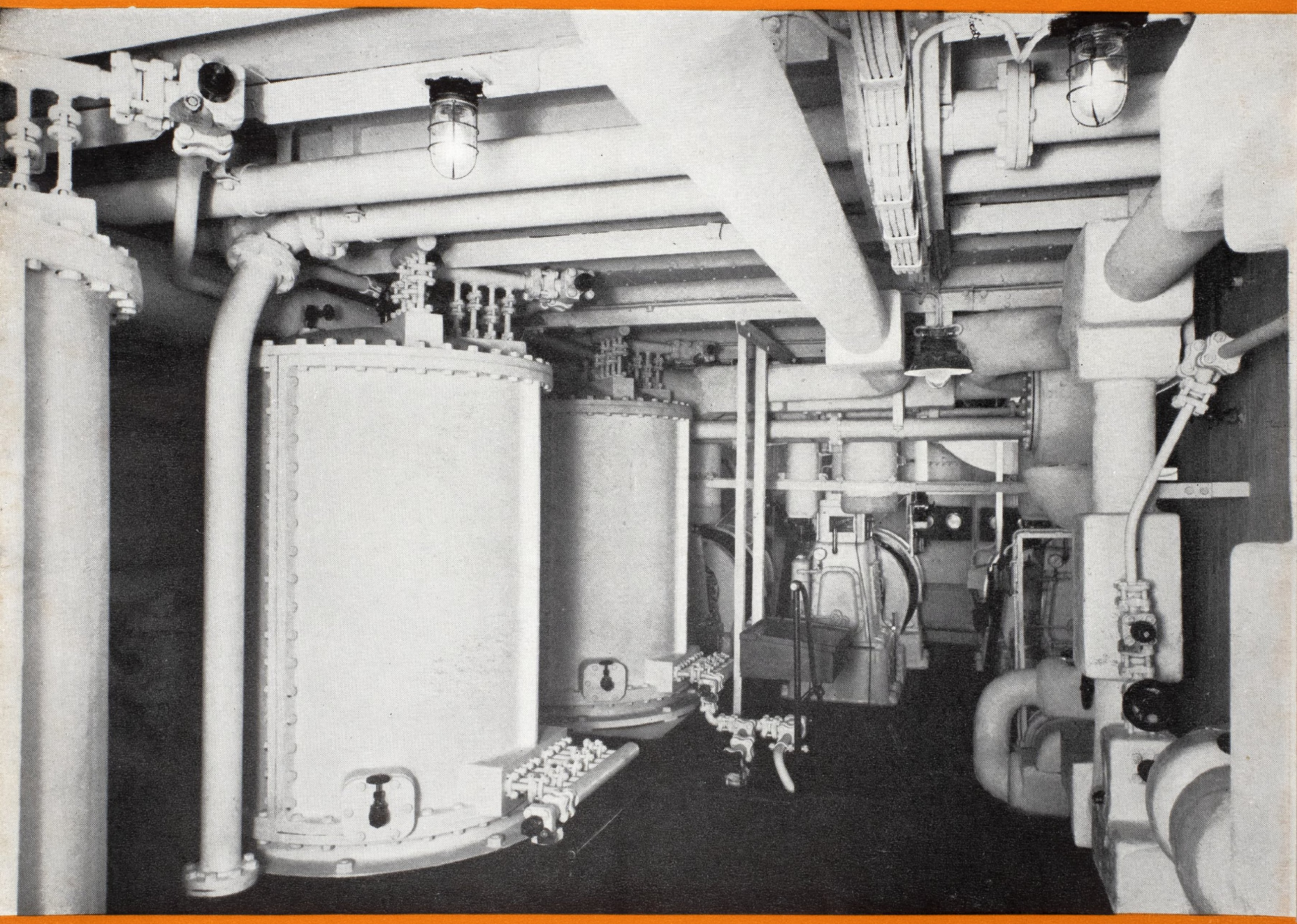

Refrigeration—S. S. Santa Rosa

August, 1934

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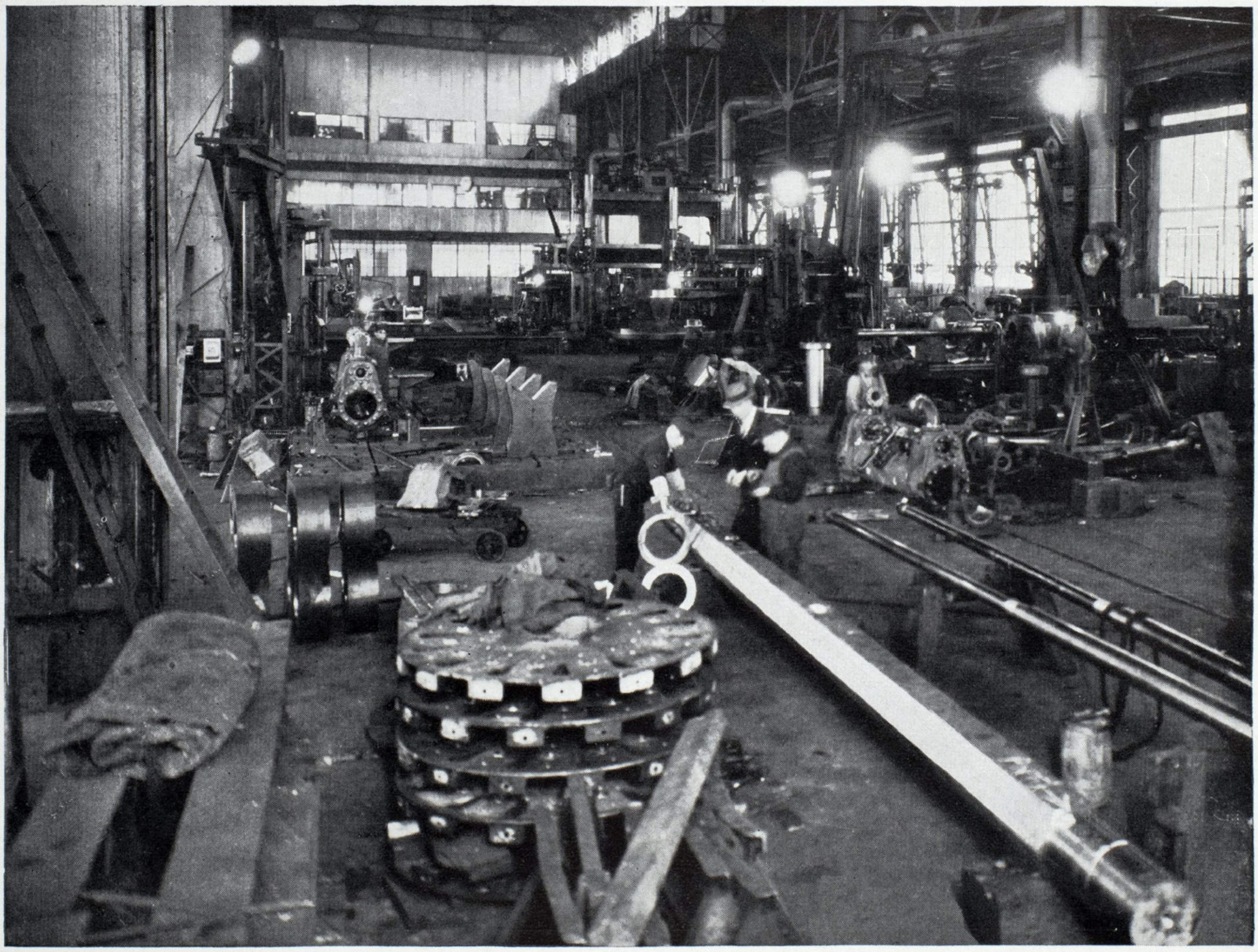

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The chromium plated C-24 nozzles have patented conical seats which are so designed that they are not easily marred.

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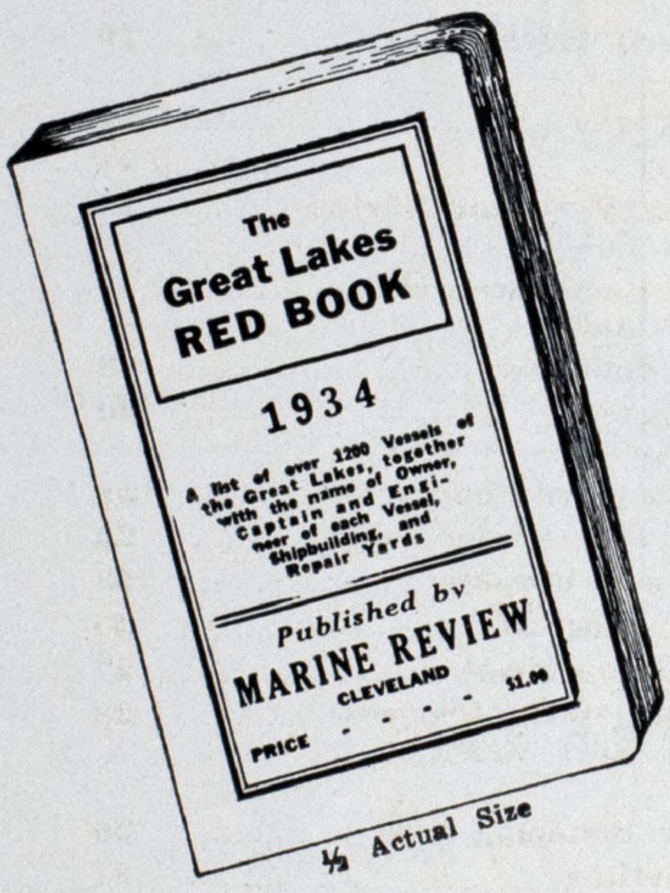
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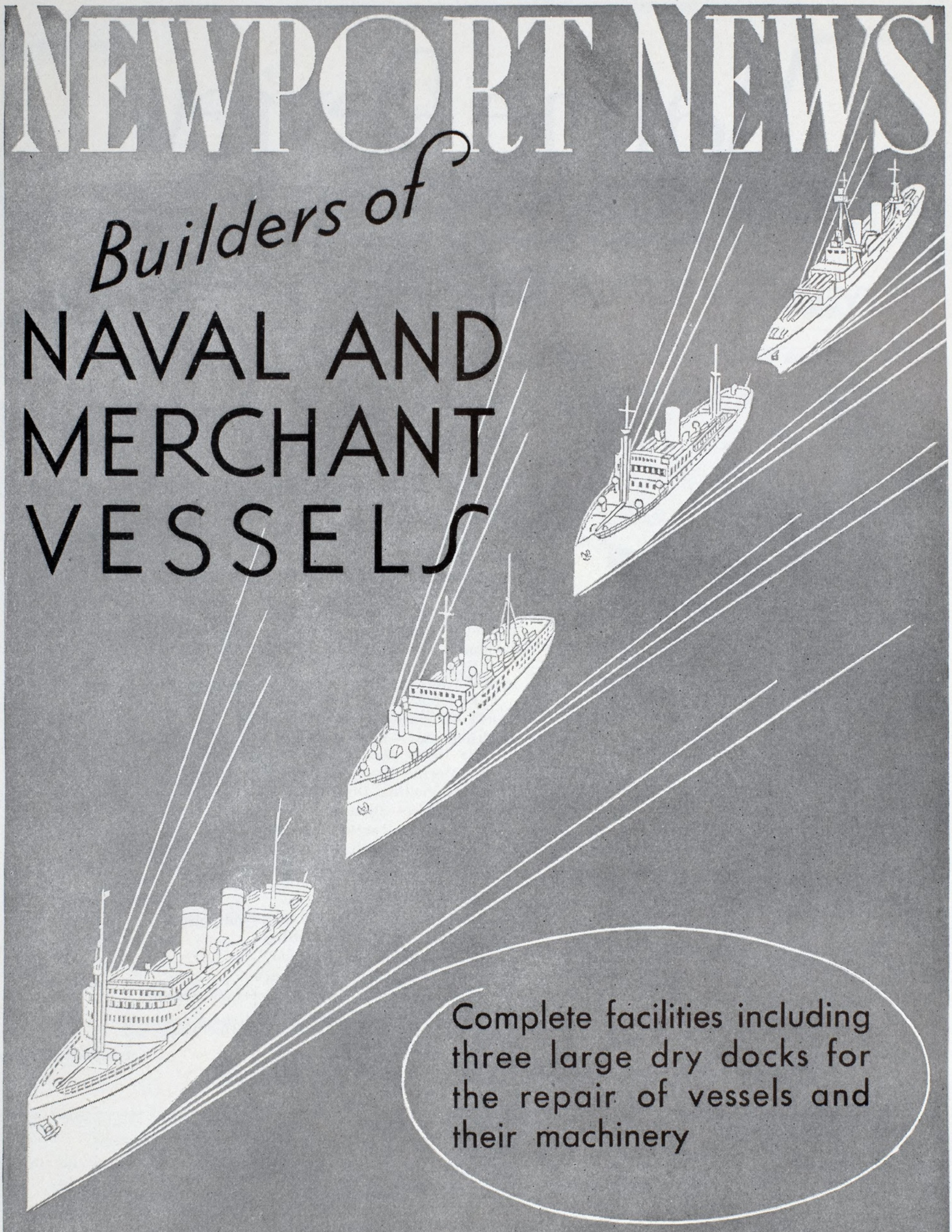

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—in 1933:	Dearie, the man says our roof needs painting.	$ Wait 'til we get out of the red. It'll last another season.
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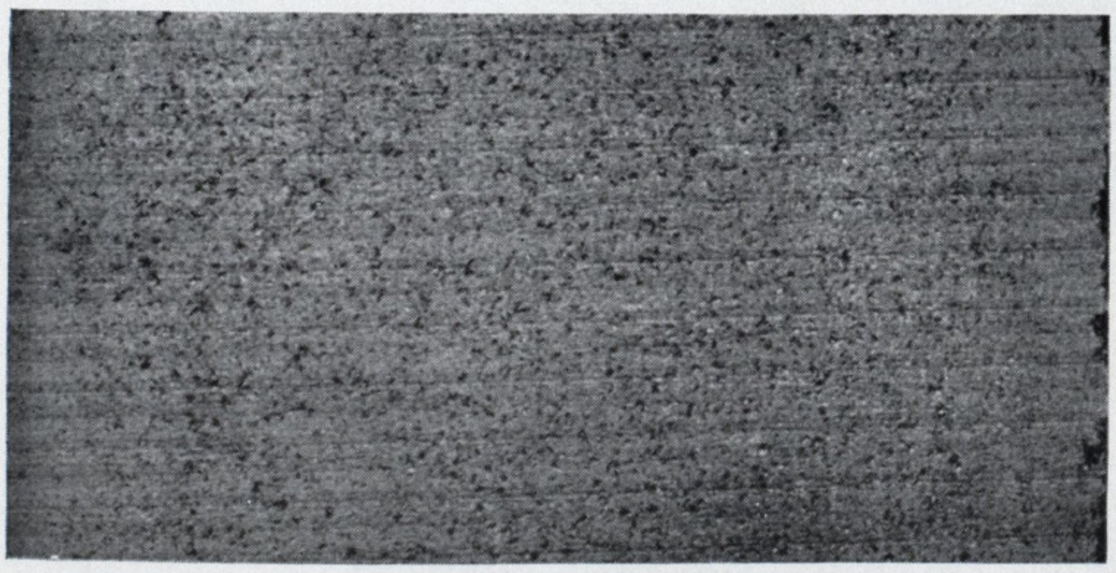

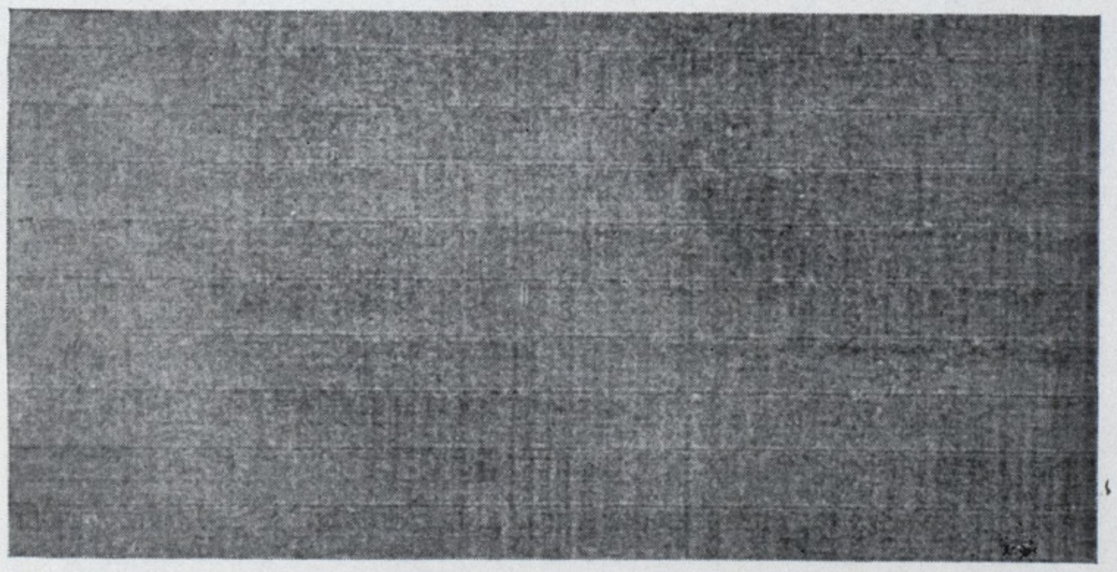

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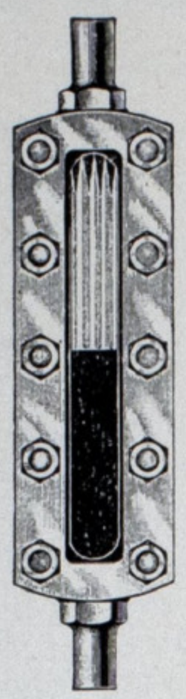

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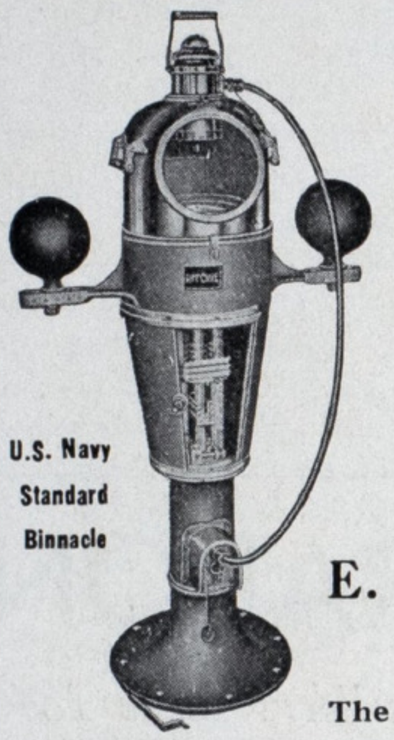

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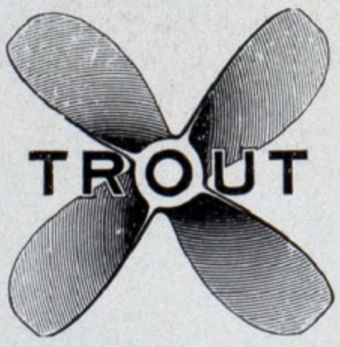

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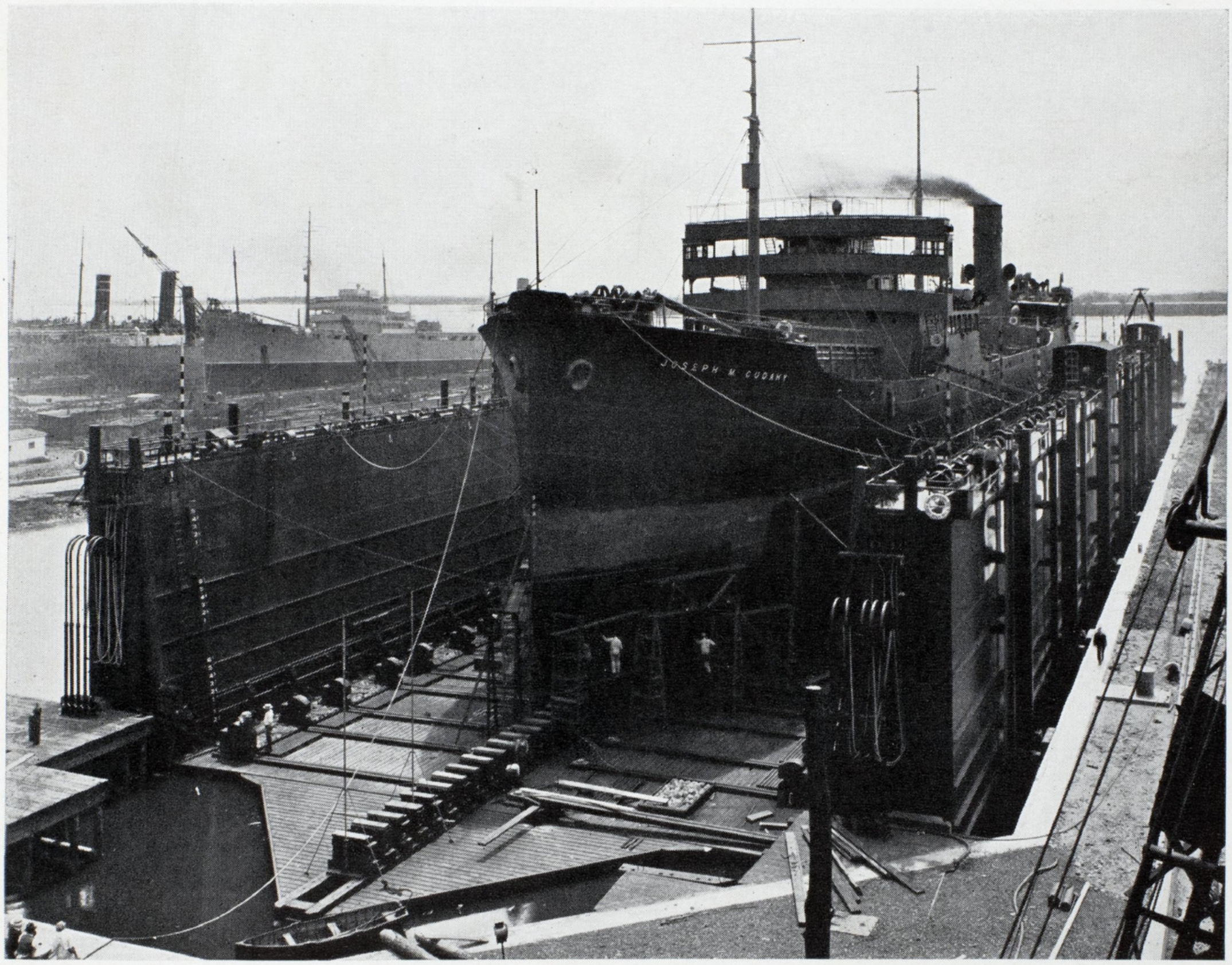

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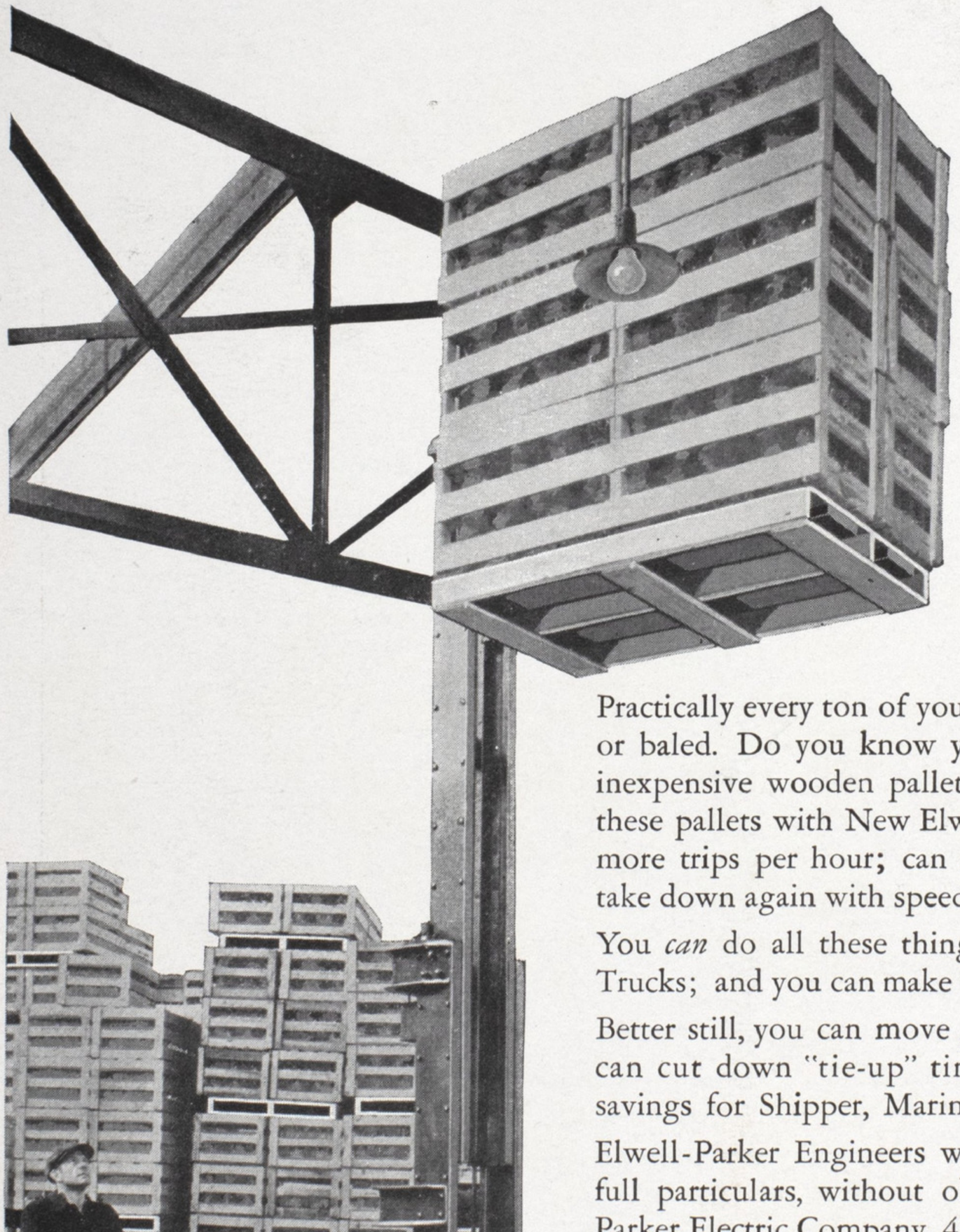

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